



CHAPTER 4

CHAPTER 4

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CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter presents the environmental consequences of the management actions proposed under the four alternatives described in Chapter 2. These management actions were developed as alternative ways of resolving the ten issues that pertain to Planning Area management and allocation of public land resources, their use and protection. BLM decisions about resource use and management in the Planning Area will be based on this impact analysis.

The alternatives include Alternative A (No Action), which represents the continuation of existing management practices defined in the *Rio Puerco Resource Management Plan* (RMP), with minimal modifications to meet the requirements of Public Law (P.L.) 100-225; Alternative B, the Resource Use Alternative, which would emphasize direct human actions; Alternative C, the Natural Processes Alternative, which would minimize human activities within the Planning Area; and Alternative D, the Balanced Management or Preferred Alternative, which would protect important environmental values and sensitive resources while allowing the development of recreational facilities and other human uses.

Impacts are discussed by alternative for each specific resource or program. For the analysis, BLM staff have used existing data, current methodologies, professional judgements, and projected actions and levels of use. The analysis takes into account the mitigation measures and stipulations described in Chapter 2. If impacts are not discussed, the analysis has indicated that none would occur, or their magnitude would be negligible. No impacts have been identified for climate, topography, prime and unique farmlands, floodplains, and hazardous materials.

Also analyzed are direct and indirect impacts, short-term uses versus long-term productivity, and irreversible and irretrievable commitments of resources. Cumulative impacts are summarized at the end of each alternative discussion. These impacts would occur as the result of past, present, and reasonably foreseeable future actions by federal, state, and local governments, private individuals and entities in or near the Planning Area.

Impacts from actions to be carried out under more than one alternative are discussed under the first applicable alternative. This discussion then is referenced under the other pertinent alternatives.

The emphasis of this chapter is general resource allocation and environmental analysis at the activity plan level. Site-specific environmental analyses, as required, would be conducted as project proposals were implemented.

GENERAL ASSUMPTIONS

The following are the general assumptions used for impact assessment under all alternatives. Assumptions associated with a single issue (e.g., wildlife habitat) are included within the alternative discussion for that issue.

- Short-term impacts are those that would last for fewer than 5 years.
- Long-term impacts are those that would last for 5 years or more.
- Demand for both dispersed and concentrated recreation in the Planning Area will continue to exist and increase.
- State highways and county roads through the Planning Area will remain open for access.
- Staff and budget will be available to implement the actions.
- No mineral development will occur on acquired lands (no potential is known within the Planning Area).
- The life of this El Malpais Plan is 15 to 20 years.

ALTERNATIVE A--NO ACTION

Recreation & Facilities

Under Alternative A, actions proposed to resolve the issues listed below would have no impacts on recreation or facility development, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

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- Issue 4--Wilderness Management
- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

Increases in the numbers of visitors may decrease enjoyment for some people. Increased recreational use would create short-term impacts such as crushing of vegetation, localized soil compaction and erosion as people used the same locations over and over again.

In the long term, however, monitoring and the low numbers of developed facilities would help to disperse recreation and improve recreational opportunities. As monitoring showed impacts that exceeded the standards for Limits of Acceptable Change (LAC), the BLM would build hiking and mountain biking trails, trailheads, and other appropriate recreation facilities. This additional development would keep impacts low at existing sites and accommodate more dispersed use as the number of visitors increased.

Maintaining the Chain of Craters Back Country Byway would continue to provide recreational opportunities for visitors interested in driving and sightseeing along back roads. Visitors interested in cultural or historical properties would find up to nine different opportunities for exploration.

Under Alternative A, interpretive evening programs would increase visitor knowledge and recreational opportunities. Guided hikes would increase the opportunities for hiking and sightseeing.

Assigning Visual Resource Management (VRM) classes to all lands in the Planning Area would improve and maintain its scenic quality and increase the opportunities for sightseeing.

Issue 2--Facility Development

The limited facility development in the Planning Area would make some visitors feel unwelcome and uncomfortable about using the area for recreational activities. Others would enjoy the unconfined recreation and solitude. Twenty-two acres (less than 1

percent of the Planning Area) would be disturbed as the result facility development under Alternative A.

Opportunities for camping would be limited to the semi-developed Narrows site. Two developed trailheads would provide recreational opportunities for hikers along the Continental Divide National Scenic Trail (CDNST) and other visitors. The visitor registration boxes installed at the Dittert Site and four selected homesteads would provide the BLM with recreation and visitor use data, enabling more informed decisionmaking about managing the Planning Area.

Issue 3--Access & Transportation

Working with county, state and federal agencies to maintain or improve some roads in the Planning Area would increase two recreational opportunities, driving for pleasure and sightseeing. However, by increasing travel and access along some roads, this action may negatively impact those who wished to experience solitude. To accommodate American Indian traditional activities, temporary closures of small areas would limit access for recreation users during brief periods of time (no more than a few days).

Visitors would have access on 354.5 miles of roads designated as open. This would maintain opportunities for recreationists who were interested in driving for pleasure, back-country driving, or sightseeing. Cross-country access by nonmotorized means would remain as is, providing opportunities for activities such as hiking, mountain biking, and horseback riding.

Issue 5--Wilderness Suitability

Management of existing wilderness and additions would improve recreational opportunities for those wishing to experience solitude. However, those visitors seeking more motor vehicle or mountain bike access to areas for recreation would find diminished opportunities.

Not recommending lands in the Chain of Craters WSA for wilderness designation would open them for

more types of recreation. Driving for pleasure, hiking, and mountain biking opportunities would not be limited by a wilderness designation.

Issue 7--Cultural Resources

Surveys for cultural resources would identify sites and increase the potential for recreational opportunities for those visitors interested in cultural or historical properties for sightseeing. If recreational use began to impact cultural resources, such opportunities would have to be modified and/or limited to protect the resources. If cultural resources were found during a survey, recreational developments could be located to avoid impacts.

Five scientific investigations would increase the sightseeing opportunities for those visitors interested in cultural and/or historical properties. Stabilization of historical and cultural properties would mean that more of these sites would be preserved for viewing. Some recreationists would be attracted to sites with antiquities signs, while others would find the signs visually intrusive.

Issue 8--Wildlife Habitat

The quality of hunting and non-consumptive wildlife-related recreation, such as birdwatching, wildlife viewing and photography would improve as wildlife habitat was improved. This improvement would take place through implementation of the Habitat Management Plan and other maintenance and improvement projects designed for wildlife, including threatened, endangered, and special-status species. BLM cooperation with state and federal agencies to reintroduce native wildlife/plant species would also increase wildlife viewing potential.



Northern flicker

If recreational use began to impact or conflict with wildlife habitat maintenance or improvement, such use would have to be modified and/or limited. Habitat management could cause recreational developments to be relocated to avoid affecting wildlife. Some parts of the Planning Area would be seasonally closed to protect wildlife species, limiting viewing opportunities for 2 to 6 months each year.

Issue 9--Vegetation

Continued livestock grazing in the Planning Area could have both beneficial and detrimental effects on recreation. Most vehicle access routes to or across public land would involve ranch roads, and many recreationists such as hikers or hunters would use livestock facilities for orientation when they were in the field. Cattle trails are often good starting points for hikers. Livestock grazing could benefit wildlife-based recreation by dispersing water sources and allowing for increased habitat diversity. Some recreationists would prefer to not have cattle disturb their solitude, viewing cattle as a hindrance to their appreciation of the natural world, while others would enjoy seeing the animals.

Prescribed fires and wildland fires under prescription would create a short-term visual impact and smoke for recreation users, having a negative impact on recreational opportunities. During the burn period, the BLM would limit access to areas covered under the burn plan to protect visitors. This short-term access limitation would negatively affect recreational opportunities. After a burn, recreational use would be monitored closely so visitors did not impact soil stability, and modified if erosion began to occur.

The long-term benefit of the fires would be a more diverse vegetative and wildlife community, which would increase recreational opportunities such as wildlife viewing, hiking, sightseeing and hunting. Some long-term visual impacts would occur if large trees were killed as a result of the fires.

Other vegetative manipulations or actions called for to change the vegetative environment would produce short-term impacts to recreation. During the course of the action, visitor use to the area would be restricted to protect health and safety. Immediately after the treatment some scenic disturbance would be noticeable.

Issue 10--Boundary

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& Land Ownership Adjustments

Acquisition of lands by the BLM would enhance recreational opportunities and management in the Planning Area by reducing potential conflicts between recreationists and private landowners. Public acquisition of non-federal lands would also provide more locations for dispersed recreational use and facility development. Right-of-way management would limit locations where these scenic intrusions could impact recreational opportunities and facilities.

Summary

Recreational activities dependent on a predominantly unmodified natural setting (where motorized use was not allowed unless permitted) could occur in 43 percent of the Planning Area available as designated wilderness. The remaining 57 percent of the Planning Area would support numerous other forms of dispersed recreational activities, including vehicle use, which would be allowed on 354.5 miles of BLM-administered travel routes. Public acquisition of non-federal lands within the Planning Area would also provide more locations for dispersed recreational use.

Recreational developments would be limited to the Ranger Station and the approved Nature Trail, the facilities and trail at La Ventana Natural Arch. The Narrows would provide informal opportunities for picnicking and camping at four semi-developed units, as well as access to the Cebolla Wilderness and the Narrows Rim Trail. Marking this trail and the CDNST would provide additional opportunities for trail hiking and other associated activities. An authorized access route into Hole-in-the-Wall would provide additional hiking opportunities into this rugged area.

Management of the resources in the Planning Area under Alternative A would contribute to maintaining and enhancing the quality of the users' recreational experiences by preventing the degradation of the surrounding physical setting. Improvements in the health of the vegetation and wildlife would increase the recreational opportunities. The quality of consumptive and non-consumptive wildlife-related recreational activities such as wildlife viewing, photography and hunting would be improved through projects proposed to improve habitat and limit vehicle travel within the Planning Area. Up to nine stabilized historical and cultural properties would provide op-

portunities for those with an interest in viewing them. The use of VRM classes to maintain and improve the scenic quality of the Planning Area would also benefit recreation users.

Public knowledge of the range of recreational opportunities would be provided through interpretive efforts. Programs, guided hikes, brochures, and informal personal contact would be used to provide interpretive messages.

Access & Transportation

Under Alternative A, actions proposed to resolve the issues listed below would have negligible impacts on access and transportation. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Access to public lands to participate in motorized or nonmotorized recreational activities would be controlled through enforcement of regulations; designation of areas as open, closed, or limited to motor vehicle use; and directing certain types of use to specific facilities and routes. Opportunities for developed and dispersed recreational use would continue to be provided at various levels within the Planning Area.

Depending on user preference, the level and type of access and transportation opportunities would have either a positive or negative impact on the recreational experience. Providing travel routes for motorized use would benefit those whose preference was for this means of access. For those whose preference was for more remoteness and the freedom to explore on their own, other areas would be available to enjoy as the result of controlled access. Through the BLM Special Recreation Permit system, commercial outfitter and guide services would continue to provide the opportunity for visitors who otherwise would not be able to enjoy the Planning Area's resources.

Motorized recreational vehicle use of the Planning Area would benefit from 354.5 miles of avail-

able routes. The density of routes would favor recreationists with a preference for participating in motor-vehicle-dependent recreational activities. Continued use and occasional maintenance of these routes would keep them open. A variety of experiences would be possible due to the conditions of the travel routes. For those who liked the freedom of driving cross-country, the opportunity would be available on 5 per-cent (or 12,000 acres) of the Planning Area's public lands.

Those who preferred to access the public lands by trail would have limited opportunity, with only five established trails in the Planning Area totalling 36.5 miles in length. Nonmotorized access would be available throughout, except on 100,800 acres of wilderness closed to mechanical forms of transport.

Issue 2--Facility Development

Established trails would benefit users by providing a more comfortable means of reaching public land and by directing them to features of interest. The 25 miles of the CDNST and the short trail at La Ventana Natural Arch (less than a mile long) would continue to provide access opportunities.

The existing facilities (parking lots and trailheads) at La Ventana Natural Arch, the Ranger Station, and The Narrows would continue to provide user access to public lands in the Planning Area. The construction of two primitive trailheads along the CDNST would benefit trail users as convenient points to access that trail or other parts of the western portion of the Planning Area.

Issue 3--Access & Transportation

Motorized vehicles and mechanical forms of transport would be prohibited from using 100,800 acres of public lands designated as wilderness (41 percent of the Planning Area). These lands would be accessible for those who did not depend on these types of transport for use and enjoyment of the public lands.

In the Chain of Craters WSA and lands contiguous to the Cebolla Wilderness, vehicle use would be

restricted to existing travel routes. No cross-country access in these areas would be allowed unless authorized by the BLM. However, on 12,000 acres outside wilderness and the study lands, unrestricted vehicle access (including cross-country) would continue to be available. Access to the other 135,200 acres would be restricted to 354.5 miles of existing inventoried, BLM-administered travel routes.

Issue 6--American Indian Uses & Traditional Cultural Practices

Because of the importance of the Planning Area to several local Indian tribes and pueblos, the demand for access would continue. Closure of land to public access during traditional ceremonies would benefit American Indians by ensuring their privacy. Although closure would inconvenience other users, it is not expected to occur frequently, and the BLM would work with Indian groups to restrict it to the smallest amount of land necessary for the shortest time. The number of acres and length of time for closure would be determined with each request under any alternative.

Issue 7--Cultural Resources

The scientific and cultural values found in selected sites, along with their sensitivity to disturbance, have resulted in the restriction of both motorized and nonmotorized access. The identification of some stabilized cultural sites for public use would create a demand for public access to them. Parking areas and trails would be provided to benefit users and protect the resources.

Issue 8--Wildlife Habitat

Continued use and maintenance of established wildlife projects would require periodic administrative access using travel routes and short distances of cross-country travel. Therefore, to some extent, wildlife habitat would benefit from these access routes. Wildlife exclosures that were fenced would obstruct access to those lands within the exclosure and create an inconvenience for those who must travel around the fence. If threatened, endangered or other special-status plant or animal species were found in the area surrounding a project, closure or restriction of access through this area could also inconvenience users.

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Issue 9--Vegetation

The continuation of livestock grazing in the Planning Area would require that access to range improvements for the allottee be permitted. Restricted access into wilderness has created inconvenience for permittees. The existing pasture and allotment fences would impede nonmotorized, cross-country travel through the Planning Area.

For public safety and health, closures or restrictions might be needed when prescribed and wildland fire treatments were being used. The public would be notified in advanced of all prescribed and wildland fires. Periodic closures would impact public access for short periods of time.

Summary

The direct impacts of actions implemented under Alternative A on access opportunities would depend on the users' preferred or required method of travel. For those who preferred nonmotorized methods of travel, the entire Planning Area would be available. On 41 percent of the Planning Area (wilderness), nonmotorized access opportunities would be enhanced.

For those who preferred or were limited to motorized or mechanical means of transport, access for use would be provided on 59 percent of the public land in the Planning Area (135,200 acres) on existing travel routes (135,200 acres) or cross country (12,000 acres). Opportunities to access public lands and features within the Planning Area would also continue to be enhanced by BLM facilities and trails.

Wilderness Management

Under Alternative A, it is assumed that no additional lands within the Planning Area would be designated as wilderness by the Congress.

Actions proposed to resolve the issues listed below would have negligible impacts on wilderness management. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability

Issue 1--Recreation

The 100,800 acres of public lands in wilderness would continue to benefit visitors who wished to experience this type of setting. Existing primitive and unconfined recreational use of these areas would be consistent with the preservation of wilderness. The assignment of VRM Class I would help maintain the naturalness of the 100,800 acres of public land under wilderness designation.

Issue 2--Facility Development

Existing facilities located around the perimeter of the two wildernesses would continue to benefit recreational use of wilderness by providing access points for visitors.

Issue 3--Access & Transportation

Approximately 6 miles in the Cebolla Wilderness and 18 miles of access routes in the West Malpais Wilderness have been identified for authorized use by livestock permittees and property owners of private inholdings. Access for the development of non-federal mineral interests would be dealt with on a case-by-case basis. No undue or unnecessary impacts on wilderness would be anticipated from mineral development.

Issue 6--American Indian Uses & Traditional Cultural Practices

Closing of lands for short periods of time for privacy when traditional ceremonies were being conducted by American Indian groups would displace primitive recreational use. Infrequent motor vehicle use, i.e., once every 2 to 3 years, for no more than a day by American Indians whose mobility depended on such use for traditional cultural practices would be considered non-impairing to wilderness values. Consultation between the BLM and American Indians would be conducted before the agency initiated a formal closure and authorized the use of motorized vehicles or equipment.

Issue 7--Cultural Resources

Wilderness designation does not relieve the BLM of its cultural resource management responsibilities. Within wilderness the survey, collection, excavation, and monitoring of cultural sites would be done in a manner that was compatible with the preservation of wilderness. Therefore, localized impacts from these

activities would not be anticipated to exceed the levels permitted under the BLM's Wilderness Management Policy. Generally, cultural resources would be left to the forces of nature; however, should additional stabilization or erosion control be needed because of the threat of losing an extraordinary resource, it would be accomplished using the "minimum tool."

Issue 8--Wildlife Habitat

Wildlife projects existing at the time of designation would be allowed to remain in place. Use of motor vehicles and motorized equipment to maintain these projects would be restricted. Continued management of existing wildlife habitat exclosures would enhance the natural character of wilderness within the fenced areas.

Issue 9--Vegetation

The development of Allotment Management Plans (AMPs) and the management of livestock to improve forage conditions would benefit wilderness through enhancing the natural character of the area. Where range improvements were placed to increase rest, not use, vegetation could be improved for the benefit of wilderness character.

Action to suppress wildfire in wilderness would have the potential to alter the natural landscape and disrupt the opportunities for solitude and primitive recreation. The severity of impacts is not measurable, but suppression actions would be executed to minimize surface disturbance and disruption of wilderness resources and uses. In the long term, the short-term adverse impacts from fire could have a positive effect on wilderness character through improved plant diversity and the return of natural ecological processes.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of non-federal surface (1,000 acres) and subsurface mineral interests within the boundary of the two wildernesses would enhance wilderness management and values. The potential for surface disturbance and development of structures that would

be detrimental to wilderness character would be eliminated.

Summary

Under Alternative A, the wilderness resource would continue to benefit from the designation of 100,800 acres of public land by the Congress through P.L. 100-225. The existing uses of the Cebolla Wilderness and West Malpais Wilderness for livestock grazing, traditional and cultural practices by American Indians, wildlife habitat, and primitive and unconfined recreational activities would continue to the extent allowable under the BLM's Wilderness Management Policy and the Wilderness Act (WA). The existence of BLM facilities, state highways, county roads and BLM travel routes adjacent to these areas would continue to provide convenient user access.

The opportunities for primitive and unconfined recreational use would continue as 41 percent of the Planning Area would be available for this type of use. Wilderness designation would help to continue to maintain the existing natural character of these lands, and would provide opportunities for solitude through the application of closures and restrictions. The quality of the wilderness experience would continue to benefit from the supplemental values within these areas, including visual, cultural and historical. Acquisition of private surface and subsurface inholdings would benefit the manageability of these areas, eliminate the need for access, and reduce the potential for activities that would degrade naturalness.

Wilderness Suitability

Activities within the Chain of Craters WSA would be constrained by the Interim Management Policy. These constraints would prevent the impairment of the wilderness values of naturalness, solitude, and opportunities for primitive and unconfined recreation. The assignment of VRM Class II objectives to the WSA would help maintain the existing landscape character, preventing future unacceptable changes to the landscape elements from management actions that would be visually dominant.

Since no public lands under Alternative A would be recommended as suitable for wilderness designation, actions proposed to resolve the issues

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would have no impact and are not listed below.

American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

Alternative A emphasizes dispersed recreation, which the BLM assumes would increase throughout the life of this plan, regardless of the alternative selected. Dispersed recreation would include activities such as hunting and trapping, outfitted and guided trips, management of existing recreational facilities, and trail developments. These activities would conflict with traditional American Indian uses if visitors intruded during ceremonies or took items left as offerings. Under Alternative A the probability of such incidents would continue to increase.

Visitor use would continue to be concentrated at the Ranger Station and La Ventana Natural Arch. No conflicts would be anticipated with American Indian traditional practices at these two locations.

Other sites and areas emphasized in this alternative include The Narrows and the Narrows Rim Trail, Stone House (two widely separated historical structures), Rowe Homestead, Dittert Site, Armijo Canyon Homestead, Armijo Canyon Springhouse, other homestead sites, Aldridge Petroglyphs, Hole-in-the-Wall, CDNST, Chain of Craters, and Worley Homestead. The Ramah Navajos and other groups have identified the Chain of Craters, including portions of the CDNST, as a sensitive area. Otherwise, no specific conflicts between uses at these locations would be expected. However, archeological sites and springs are sometimes important in American Indian traditional beliefs and practices.

An inventory of the area's lava tubes could also result in intrusions into American Indian practices, although no specific conflicts have been identified. Under the Federal Cave Resources Protection Act, the BLM will keep locations of significant caves confidential.

Issue 2--Facility Development

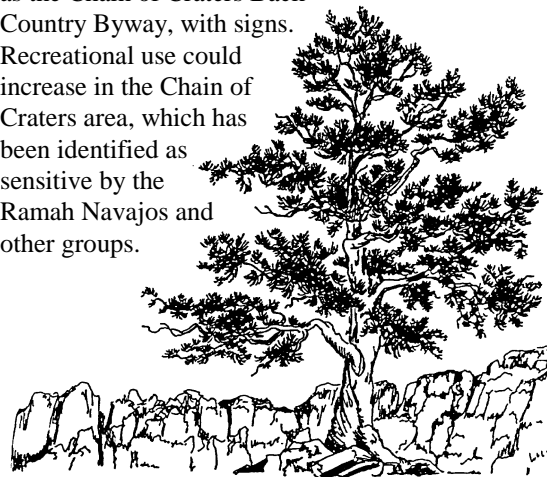
No formal campgrounds would be established. However, camping would be encouraged at The Narrows. No conflicts would be anticipated with traditional American Indian uses at this location.

Use of four trailheads proposed would not conflict with any specifically identified American Indian uses under Alternative A (at The Narrows, for the Cebolla Wilderness; in the West Malpais Wilderness; and at Cerros Brillante and Americano for the CDNST--refer to Map 10). However, mountain peaks are sometimes used for traditional American Indian practices.

If increasing mountain bike use began to result in resource damage, up to 100 miles of formal biking trails would be established in the Chain of Craters, Cerritos de Jaspe, or Brazo Units. This proposal would not result in any specific conflict with American Indian uses, but the Chain of Craters area in general has been identified as sensitive by the Ramah Navajos. Increased recreational use in this area could disrupt traditional use.

An interpretive trail would be established near the BLM Ranger Station, including a stop at the Ranger Station Reservoir. Visitor registration boxes would be established at the Dittert Site and at up to four historical homesteads. These proposals would not conflict with any known American Indian uses, but archeological sites are often sensitive.

A part of County Road 42 would be maintained as the Chain of Craters Back Country Byway, with signs. Recreational use could increase in the Chain of Craters area, which has been identified as sensitive by the Ramah Navajos and other groups.



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Issue 3--Access & Transportation

Under Alternative A, all existing roads and trails (354.5 miles) on non-wilderness Planning Area lands would remain open. However, motorized cross-country travel (e.g., for piñon nut and plant gathering) would be allowed only on 12,000 acres. Vehicle use would continue to be prohibited in the wildernesses, and limited to existing roads and trails elsewhere. This alternative would provide the maximum amount of vehicle access for traditional practices and uses, which would reduce privacy but increase accessibility.

Private parties, state and county agencies are responsible for road construction and maintenance within the Planning Area. BLM approval is often required before these activities begin. Such approval would only be given after close consultation with American Indian groups who have close ties to this area.

Issue 4--Wilderness Management

No special provisions would be made for American Indian use of the two wildernesses. Access would be by foot or horseback only. This would enhance privacy, but could also preclude activities needed to continue certain traditions of American Indian groups with close ties to El Malpais.

Issue 5--Wilderness Suitability

The BLM would recommend that the Chain of Craters WSA be managed as a part of the Planning Area, rather than as wilderness. Pending a Congressional decision, access and management would remain as they are now. Release of the area from WSA status would facilitate access and use of the area by allowing vehicle travel along designated roads and trails. Such travel would also continue to be allowed along existing roads and trails on lands contiguous to the Cebolla Wilderness. This would facilitate some traditional uses such as gathering plants and piñon nuts.

Issue 7--Cultural Resources

Under the No Action Alternative, applications would be expected for three to five scientific investigations involving collection or excavation at prehistoric sites. The Pueblo of Acoma recognizes all

prehistoric sites in the Planning Area as ancestral places, and in their traditional belief considers any excavation or collection to be an adverse effect. By law the BLM is required to consult with American Indians before undertaking such a project, but is not absolutely bound to conform to their wishes. If permits for these activities were granted, adverse impacts would result.

Many Pueblo people also regard active management of prehistoric archeological sites as intrusive. Under this alternative the BLM would undertake 1,192 acres of cultural resources inventory, post 100 antiquities signs, maintain stabilization projects at three prehistoric sites, and install erosion control measures at up to a dozen other sites. Some or all of these actions could constitute an adverse effect.

Under the No Action Alternative, the BLM would prohibit collection of prehistoric pottery, including sherds for use as temper in contemporary pottery. Collection of sherds is one traditional way by which Acoma people maintain ties to their ancestral past in the National Conservation Area (NCA). This prohibition would also be offensive because it would be an assertion of control by non-Acoma people over Acoma ancestral places.

Patrol and surveillance activities, which would take place under all alternatives, would help prevent vandalism at prehistoric sites. Prevention of vandalism is desirable under traditional American Indian belief.

Issue 8--Wildlife Habitat

Prescribed fires and wildland fires under prescription would increase vegetative diversity, but their effect on specific plants or areas used by American Indians in El Malpais is not known. Application of herbicides would be of concern to American Indians gathering wild plants, and any such activity would have to be closely coordinated with groups using the area for this purpose.

Issue 9--Vegetation

Springs are sometimes important places in traditional American Indian belief, and special consultations would be made with these groups when springs were fenced to improve riparian areas. No

provision would be made for fuelwood cutting under Alternative A. Many traditional Indian people rely heavily upon wood for heating and cooking. If alternative sources of wood were not available on U.S. Forest Service or tribal lands, Planning Area restrictions on fuelwood cutting would have a negative impact.

Issue 10--Boundary & Land Ownership Adjustments

No boundary changes are proposed under Alternative A, including the Acoma request that 960 acres of tribal lands be excluded from the NCA. The proposed acquisition of lands and mineral rights under Alternative A would improve access for traditional uses and forestall conflicting uses such as mineral development.

Summary

Increasing recreational use would have the most serious impacts on traditional American Indian practices in the Planning Area. It would create long-term consequences by reducing privacy for traditional activities and increasing the likelihood of non-Indian intrusions into them. Dispersed recreational use would probably continue to increase, although at a slower rate than under Alternative B. Several proposals under Alternative A would result in increased recreational use, including some interpretation, maintenance and signing of the Chain of Craters Back Country Byway. Fewer recreational facilities are proposed under this alternative than under Alternative B (Resource Use), but more than under the Alternative C (Natural Processes). Several facilities would accommodate increased use in the Chain of Craters WSA, which has been identified as sensitive for the Ramah Navajos and other groups.

More vehicle access would be allowed under Alternative A than under any other alternative. This would increase the ease of access for traditional activities, but reduce privacy. Vehicle access into wilderness for traditional American Indian practices would not be allowed.

Other activities and decisions proposed under Alternative A could have negative impacts. Archeological research involving excavation, signing, ruin stabilization, and erosion control intended to protect ruins would be considered intrusive by some

traditional people. Prohibitions on collection of prehistoric pottery for use as temper in contemporary pottery would also constitute an adverse effect. Certain management actions such as a lava tube inventory, authorization of road realignments, and scientific study of geological and other natural phenomena could also result in intrusions or damage to places important in traditional practices.

Chemical treatment of vegetation could adversely affect American Indian people who were gathering herbs and other plant products. Depending on the availability of alternative sources, prohibitions on fuelwood gathering may also have an adverse impact. Continued inclusion of certain Acoma tribal lands in the Planning Area may encourage trespass and thereby increase the likelihood of intrusion into traditional practices. Acquisition of lands and mineral interests under Alternative A would help to exclude uses incompatible with traditional American Indian uses, and would therefore have a positive impact.

Cultural Resources

Under Alternative A, actions proposed to resolve the issues listed below would have no impact on cultural resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 2--Facility Development
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 1--Recreation

Proposals that would lead to increased visitation would result in more illegal surface collection and casual excavation of prehistoric sites, although the extent of these impacts cannot be quantified. When recreational use was dispersed as it would be under Alternative A, adverse impacts would be more difficult to control than if use was concentrated in defined areas or corridors, as under Alternative B. (Use in defined areas can be developed to draw the focus away from sensitive areas.) This use would include camping, hiking, hunting and picnicking.

Designation of the Chain of Craters Back Country Byway, and development of several

CHAPTER 4--IMPACTS

trailheads and designated hiking areas on the west side of the Planning Area would help distribute recreational use away from sensitive areas. On the east side of the Planning Area, where cultural resources are much more dense, most developments would be located at La Ventana Natural Arch and The Narrows, both which are outside areas of major site concentrations.

Under Alternative A, the BLM would encourage public visitation at the Dittert Site, the Aldridge Petroglyphs, the Ranger Station Reservoir, and up to six historical homesteads. Documentation is sufficient to protect scientific values at the Dittert Site and the homesteads, although the physical structures at all of these sites would require increased maintenance. Systematic documentation would be needed at the Aldridge Petroglyphs to prevent loss of resource values, and data recovery through systematic collection of surface materials would be needed at the Ranger Station Reservoir. Numerous undocumented archeological sites near the Aldridge Petroglyphs would be subject to impacts such as surface collection if public visitation increased.

Issue 3--Access & Transportation

Limiting motor vehicles to existing roads would protect prehistoric and historical cultural resources by making it more difficult for scavengers and looters to bring in excavation gear or transport away materials such as building stone or weathered wood. At the same time, patrol by BLM specialists and law enforcement personnel would be more difficult.

However, under Alternative A, a maximum number of roads would remain open (354.5 miles). In addition, approximately 5 percent of the Planning Area (12,000 acres) would be available for unrestricted cross-country vehicle use, including the Breaks Non-NCA Unit, which has areas of high site density. In addition to increased vandalism, unrestricted cross-country vehicle use could result in direct damage as vehicles ran over archeological sites. Increased erosion, another negative impact, could also occur in the unrestricted areas.

Issue 4--Wilderness Management

Resource deterioration due to natural decay and erosion would be allowed to continue unless unusual

resources were threatened, and even then remedial actions would be restricted by wilderness considerations. However, wilderness is generally patrolled more intensively than other BLM land, so Archeological Resource Protection Act (ARPA) violations would more likely be discovered and reported.

Issue 5--Wilderness Suitability

Current information suggests that few cultural resources exist in the Chain of Craters area, so its continued management as a WSA would have little effect on cultural resources. Under Alternative A, no contiguous lands would be added to the Cebolla Wilderness, so future excavation and scientific study of any inventoried sites on those lands would not be limited by either the Wilderness Management or Interim Management Policy.

Issue 7--Cultural Resources

Under Alternative A, the BLM would emphasize conservation of cultural resources while still making reasonable allowances for archeological investigation. Provisions under this alternative for National Historic Preservation Act (NHPA) compliance, inventory, signing, access easements and consolidation of ownership, road closure, monitoring, stabilization, and fire suppression would have slightly positive, long-term impacts on scientific and public values.

Scientific investigations would provide current information, but in some cases, would destroy portions of the affected sites, leaving them unavailable for research using future technologies and approaches. This would be a negative long-term impact to particular properties but, at the levels anticipated under this alternative (fewer than five projects), would not affect the long-term scientific potential of the Planning Area as a whole.

Proposals under this alternative would be limited primarily by the level of funding available to address problems of cultural resource management. Measures described for this alternative such as patrolling, monitoring and signing would be effective on a limited scale in reducing damage due to erosion, vandalism and casual artifact collection associated with visitors.

Issue 9--Vegetation

Livestock grazing can adversely affect cultural resources by reducing vegetation, thereby contributing to erosion. Trampling can break artifacts on the ground surface, and livestock sometimes rub against historical structures, contributing to their deterioration. Erosion affecting cultural resources would undoubtedly continue, but would be reduced by improved grazing management under the No Action Alternative. Eight historical homesteads in the Planning Area have been fenced to exclude livestock, and under this alternative additional fencing would be installed if warranted.

Range improvements, spring developments, and watershed structures proposed under the No Action Alternative would be subject to environmental analysis, and their potential adverse effects could be mitigated through avoidance or data recovery. Similarly, chemical, mechanical, and biological vegetative treatments under Alternative A would be on a small scale and would be evaluated on a case-by-case basis through separate Environmental Assessments (EAs).

Fires, including prescribed fires and wildland fires under prescription, could destroy historical sites with flammable elements and damage the scientific potential of surface and near-surface archeological materials. Activities associated with fire suppression such as establishment of fire camps and construction of fire lines could also result in adverse impacts to cultural resources. Under Alternative A, eight to twelve historical sites have been identified for protection from fire, and other newly discovered sites could be added to this list. Reconnaissance-level surveys for sites with flammable materials would be conducted in areas where prescribed fires were proposed. Inventories would not be to Class III standards if fires were proposed in areas of low site density (refer to Map 37). Class III inventory would be considered in zones of high site density, and a cultural resources advisor would be required during fire suppression activities, regardless of the source of ignition. To ensure site protection, fire would not be used in some areas.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition proposals could benefit cultural

resources by eliminating mineral entry and inadvertent disturbance. Important cultural resources in the Breaks Non-NCA Unit would receive more intensive management if it was acquired.

Summary

NCA designation and the provisions of this plan would be effective in protecting cultural resources from damage as a result of deliberate, planned actions. However, natural and human factors would continue to degrade cultural resources. Natural deterioration would continue to affect historical homesteads, while gully and sheet erosion would affect archeological sites. Both types of sites would continue to be vulnerable to illegal collection, looting and vandalism.

Illegal surface collection would be primarily an unintended effect of recreational uses. This impact could be partly mitigated by positive interpretive messages, and by building recreational developments that encouraged use in non-sensitive areas. Documentation of archeological sites before they were seriously affected by surface collection could also partly offset the adverse effect of this activity.

Recreational developments and designated use locations would generally be in non-sensitive areas under Alternative A, although additional systematic documentation would be needed in several areas proposed for cultural resource interpretation. Access would remain essentially as it is now, with no additional impact on cultural resources. (Note: Survey provisions would be more stringent under the other alternatives.)

Cultural resource management activities intended to have a positive effect such as stabilization, erosion control, patrolling and monitoring would be limited to the most important sites and restricted in wilderness areas. Policies regarding archeological research that involved collection and/or excavation would be relatively liberal under this alternative.

Most developments, vegetative treatments, wildlife habitat projects and other similar proposals would be small in scale. With appropriate survey and mitigation, these proposals should have no effect on cultural resources.

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Wildlife Habitat

Direct impacts associated with trails and parking areas would generally be long term, while those from vegetative treatments using fire would be short term. The following are the estimated acres of habitat disturbed by facilities in the Planning Area.

- Trails: 3 acre for each mile of trail (3 feet wide).
- Parking: for 30 vehicles--1½ acre, 20 vehicles--1 acre, 10 vehicles--½ acre, and 4 to 6 vehicles--¼ acre.
- Kiosks/Pullouts/Signs: 5 to 10 square feet (not including parking).

For the purpose of this analysis. Prescribed fires would average 500 acres each in size under Alternatives A and D, and 750 acres under Alternative B. Wildland fires under prescription would average 1,000 acres each under any alternative.

In addition to direct impacts to habitats, a zone of disturbance (acres potentially disturbed by human activities) would result from each type of facility as identified below.

- Established Trails: 80 acres (C mile wide) for each mile of trail.
- High-Intensity Use Areas (campgrounds, Ranger Station, La Ventana Arch): 640 acres (1 square mile) around each area.
- Moderate Use Areas (trailheads, pullouts, picnic areas): 160 acres (¼ square mile) around each area.
- Low-Use Areas (kiosks, interpretive tours): 40 acres (1/16 square mile) around each area.

Water catchment devices come in many types and sizes, but most measure about 20 feet by 20 feet (400 square feet). In addition, a square area measuring 100 feet on each side is generally fenced to protect each water catchment.

Fences would generally disturb an area of vegetation measuring approximately 50 to 100 square feet for each mile built. Where a fence is constructed

through closed woodlands, a loss of approximately ¼ to ½ acre of trees per mile of fence would also occur.

For a more complete description of typical wildlife projects (water developments, fences, vegetative manipulation), refer to Appendix P.

Under Alternative A, actions proposed to resolve the issues listed below would have no impacts on wildlife habitat, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

Issue 1--Recreation

Hunting and trapping would continue within the Planning Area under any alternative under NMDG&F regulations. In the short term, individual animals would be lost to these activities. However, because the State of New Mexico's main goal is to maintain stable and productive populations for future generations, other animals would be born to take their place.

Issuance of Special Recreation Permits (for hunting guides, mountain bike events, pack-animal trekking) under the BLM's existing process (which includes a site-specific EA) could continue to impact wildlife by disturbance within the immediate vicinity of the actions under any alternative. However, these would be considered dispersed and intermittent activities; no concentrated use or impact in any specific area is anticipated.

Within the Planning Area, three existing recreation areas (the Ranger Station, La Ventana Natural Arch, and The Narrows) would continue to be used for various activities under any alternative. Concentrating visitor use into these specific areas would cause a greater impact on the animals in or near them, but in the long term would reduce the number and size of impacts on wildlife and their habitats throughout the overall Planning Area. These areas have already created a direct loss of approximately 7 acres of habitat (2 at the Ranger Station, 2 at La Ventana Natural Arch, and 3 at The Narrows) from camping, picnicking, parking and

structures. An additional zone of disturbance to wildlife species in conjunction with these areas (e.g., noise) is estimated at approximately 640 acres (1 square mile) for each area, for a total of 1,920 additional acres (refer to Table 4-1).

The continuation of camping (at four sites), the addition of one portable toilet, and the maintenance of a horse gate at The Narrows are not anticipated to create any additional loss of wildlife habitat. Most usable space for camping, picnicking, and parking within The Narrows has already been disturbed by past recreational use. (Note: EAs were completed for La Ventana Natural Arch and Ranger Station in 1989 and 1990.)

Four trails (the CDNST, Ranger Station Reservoir, La Ventana Natural Arch, and Narrows Rim) would be emphasized for hiking activities under Alternative A. In addition, the Hole-in-the-Wall Trail would be used regularly because of its location. A cumulative loss of approximately 4 acres of habitat and a wildlife disturbance zone of approximately 960 acres would occur from continued use of these trails (refer to Table 4-1). (Except for about half of the CDNST, these treadways already exist.)

Portions of the CDNST treadway through the Planning Area totalling **20** miles have now been **marked**. The treadway is anticipated to cross about 25 miles of the Planning Area under any alternative, which would create a direct loss of about 8 acres of habitat. An additional zone of wildlife disturbance is estimated at approximately 2,000 acres. (Note: Impacts of the CDNST have already been addressed in another plan--USDA, FS 1993.)

Conducting a **half-mile** long interpretive hike on the Nature Trail at the Ranger Station would cause direct surface disturbance. Less than half an acre of habitat would be lost because of the treadway, with an additional zone of disturbance of 80 acres.

The trail at La Ventana Natural Arch is the most popular within the Planning Area, used by thousands of hikers annually. It is ¼-mile long and lies entirely within the recreation site. Impacts associated with

this site have already been evaluated in an Environmental Assessment (USDI, BLM 1989).

The Narrows Rim Trail, approximately 3.5 miles in length, is used for access into the Cebolla Wilderness. Continued use of this trail would perpetuate a direct loss of about an acre of habitat from the treadway, with an additional zone of disturbance of approximately 320 acres.

The Hole-in-the-Wall Trail is approximately 7 miles long, with 2 acres of habitat lost from the treadway, and an additional zone of disturbance of approximately 560 acres.

Interpretive programs and activities (e.g., hikes, walks, lectures and tours) would occur at established recreation and homestead sites and dispersed locations throughout the Planning Area during the summer months. The anticipated impacts would include disturbance of approximately 3 acres of habitat from foot traffic (¼ acre per site at 12 sites) and a wildlife disturbance zone of approximately 480 acres (40 acres per site) within the immediate vicinity.

Dispersed camping, hiking, picnicking, horseback riding, and mountain biking outside established recreation sites and trails would occur infrequently in any one given area. These activities would create temporary disturbances for wildlife species in the immediate vicinity of the activity (e.g., birds flushed from trees and rabbits from bushes), but would not be anticipated to cause any long-term impacts. It is estimated that wildlife would be disturbed on 640 acres per year from these dispersed activities under Alternative A (refer to Table 4-1).

Educating visitors about wildlife-related concerns could benefit wildlife habitat and/or individual species by alleviating some impacts. Topics covered could include the importance of low-impact, Tread Lightly and Leave No Trace recreation; wildlife use of dead and down trees and logs, and wetlands; disturbances caused by human-wildlife interactions; and the role of fire, fire management and fuelwood harvesting for wildlife conservation.

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TABLE 4-1
ESTIMATED ACRES OF WILDLIFE HABITAT DISTURBANCE

Type of Action/ Impact	Alternatives			
	A	B	C	D
<u>Short-Term Impacts</u> ^a				
Prescribed Fire	500 ^b	3,000	0	2,000
Wildland Fire Under Prescription	1,000	1,000	1,000	1,000
Woodland Thinning	0	100	0	100
Totals	1,500	4,100	1,000	3,100
<u>Long-Term Impacts</u> ^c				
The Narrows	3/640 ^d	3/640	3/640	3/640
La Ventana Arch	2/640	2/640	2/640	2/640
Ranger Station	2/640	2/640	2/640	2/640
New Campground	0	10/640	0	8/640
CDNST Treadway	8/2,000	8/2,000	8/2,000	8/2,000
CDNST Trailheads	1/320	3/320	0	2/320
Misc. Trailheads	4/960	24/6,720	4/960	15/3,540
Interpretive Hikes/ Tours	3/480	4/560	0	2/280
Signs, Kiosks	1/160	4/640	0	1/160
Dispersed Recreational Activities	0/640	0/1,280	0/320	0/960
Wildlife Developments	20/0	60/0	3/0	40/0
Totals	44/6,480	120/14,080	22/5,200	83/9,820

Notes: ^a Short-term impacts would occur annually.

^b Acres of direct disturbance from vegetative treatments to wildlife habitat.

^c Long-term impacts would last for the life of the plan (15 to 20 years).

^d Shows 3 acres of direct disturbance to wildlife habitat (e.g., from treadway, parking) and 640 acres of intermittent species disturbance from human presence and noise.

Issue 2--Facility Development

Under Alternative A, new facilities would be limited to those associated with the establishment of the treadway for the CDNST, one additional portable toilet at The Narrows, and those facilities needed to mitigate any resource damage. These few facilities would have limited additional impacts on wildlife within the Planning Area.

In addition to developing the treadway for the CDNST, the BLM would build two primitive trailheads near Cerro Americano and Cerro Brillante, with graded parking for 10 vehicles at each location. These parking areas would cause long-term loss of an acre of habitat (approximately ½ acre for each site). In addition, wildlife disturbance near the trailheads would be expected over approximately 320 acres (160 acres for each site--refer to Table 4-1).

New signs and kiosks (up to four each) would be installed and maintained along CR 42 (the Chain of Craters Back Country Byway). All these developments would have direct impacts on habitat; however, most would be installed along established roads and create very little additional disturbance. The four kiosks would directly disturb approximately an acre of habitat (¼ acre each for parking), with an additional disturbance zone of 160 acres total.

Maintaining CR 42 as a Back Country Byway and allowing sightseeing and driving for pleasure on 354.5 miles of roads throughout the Planning Area would continue to directly disturb wildlife species near the road with noise and harassment. Increased use of this byway and other existing roads would be expected in the future; this would also increase the disturbances to wildlife.

Issue 3--Access & Transportation

Under Alternative A, 354.5 miles of roads outside wilderness would be open to motor vehicle use (refer to Table 2-7). The impacts of continued use of these roads on wildlife habitat are discussed above under Issue 2, Facility Development.

Issue 4--Wilderness Management

Continued management of 100,800 acres of public land as wilderness would benefit wildlife and their habitats because human activities in these areas

would be limited in scope and extent. However, wilderness management restrictions could also preclude or modify certain wildlife habitat improvement projects within these areas, if proposed.

Issue 5--Wilderness Suitability

The recommendation not to designate the Chain of Craters WSA as wilderness would not change any wildlife protection or benefits. If the Congress dropped the Chain of Craters from wilderness study, the BLM would use appropriate protective measures under P.L. 100-225 to protect and enhance wildlife habitat within the area. If the Congress designated the area as wilderness, it would be managed in accordance with the Wilderness Act.

The 10,380 acres contiguous to the Cebolla Wilderness would not be recommended as wilderness and would continue to be managed in accordance with the RMP. Wildlife would not gain the benefits of protection from wilderness designation, but any habitat improvement projects proposed would not be limited by wilderness management restrictions.

Issue 8--Wildlife Habitat

Under Alternative A, *it is anticipated that* three wildlife habitat maintenance projects per year would be undertaken to meet existing wildlife needs throughout the Planning Area. The maximum anticipated development annually would include one prescribed fire and two facility project (e.g., fences, water catchments). Each prescribed fire would average approximately 500 acres in size, which could be lost as wildlife habitat for the short term. The facility projects would disturb approximately ½ acre per project (1 acre/year), for a total of 20 acres over the life of this plan (refer to Table 4-1 and Appendix P).

Under any alternative, implementing habitat management projects would produce short-term negative impacts and short- and long-term benefits. Projects such as prescribed fire would cause a temporary loss of vegetation and habitat, but would improve vegetative habitat productivity over the long term. The overall loss of forage would be minimized within any one wildlife habitat area, and different areas would be burned at different times to create habitat in various stages of development.

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Issue 9--Vegetation

Vegetative manipulation under Alternative A would be limited to livestock grazing and riparian management practices. Managing allotments according to existing AMPs/ CRMPs generally would increase vegetative composition, production and cover, and improve vegetative condition and the quality of wildlife habitat. In the long term, improving ecological condition through grazing management practices would reduce competition between livestock and wildlife for forage, cover, and space.

Because of the limited use of vegetative treatment methods under Alternative A, however, benefits to wildlife habitats would be limited in the short term. No planting of riparian species or removal of exotic species (e.g., saltcedar, Russian olive) would be undertaken under this alternative. Therefore, achieving properly functioning condition for the riparian areas within the Planning Area would require a longer period of time.

Issue 10--Boundary & Land Ownership Adjustments

Acquiring private land identified in the Land Protection Plan (1989) would benefit wildlife through improved manageability. The ability to maintain and improve wildlife habitats through the use of prescribed fire is dependent on having large blocks of contiguous public lands. The unpredictability of fire, even under controlled conditions, generally precludes its use in areas with intermingled state and/or private lands. Blocking up lands through out the Planning Area would enhance the ability of the BLM to use wildland and prescribed fires to maintain and improve wildlife habitat.

Summary

Under Alternative A, activities associated with recreation, interpretation, and facility development would result in the loss of 24 acres of wildlife habitat over the life of the plan. In addition, disturbance to species would occur on approximately 6,480 acres, mainly near areas of high human use or developed facilities. Dispersed activities (e.g., hiking, sightseeing, guided tours) would generally create intermittent impacts (a few hours or days) to wildlife,

depending on the specific duration of the activity. Activities associated with wilderness and WSAs would generally provide short- and long-term benefits to wildlife and their habitats because of increased protective measures. Habitat maintenance projects and vegetative treatments would cause the short-term habitat loss of 1 acre per year for facilities, and 1,500 acres per year for prescribed and wildland fires. However, these wildlife and vegetation treatments are anticipated to improve the long-term productivity of the area.

Threatened, Endangered & Other Special-Status Species

Alternative A:

The BLM has completed informal consultation with the FWS under Section 7 of the Endangered Species Act (ESA). As part of the informal consultation process, a Biological Assessment was prepared for all Threatened and Endangered and other Special-Status Species (Refer to Appendix Q) The FWS concurred with the BLM determination of "May Affect-Not Likely to Adversely Affect" and no formal consultation was initiated.

Vegetation

Under Alternative A, actions proposed to resolve the issues listed below would have no impact on accomplishing the vegetative objectives discussed in Chapter 2. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Under Alternative A, more dispersed types of recreational opportunities would be encouraged. This management preference would minimize the destruction of vegetation by physical means such as trampling and cutting of trees. Interpretative themes

in the Planning Area would promote a land use ethic that encouraged coexistence with natural ecological processes. As a result, the impacts to vegetation associated with human use would be fewer than if no interpretation was done.

Issue 2--Facility Development

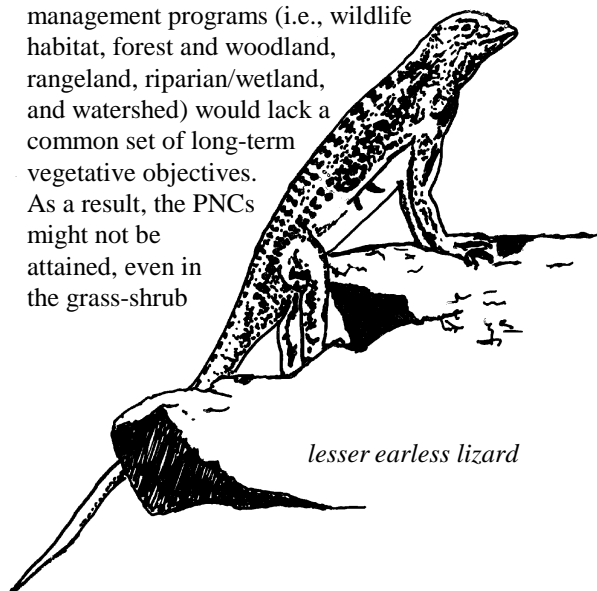
Construction of existing facilities such as buildings, parking lots, and picnic areas has caused vegetation to be destroyed. For the most part, the vegetation around existing facilities would be adversely affected by increased and concentrated visitor use. However, directing use to specific areas would result in fewer overall impacts to vegetation than random, unmanaged use. Site-specific assessments would continue to be made for developed facilities.

Issue 3--Access & Transportation

Designating public lands as limited or closed to off-road vehicle use would reduce the amount of destruction to vegetation. Providing reasonable access, while attempting to reduce conflicts between users and prevent damage to the natural resources, would reduce the incidences of willful violations and subsequent destruction of vegetation.

Issue 9--Vegetation

Achieving the Potential Natural Communities (PNCs) would not be the vegetative goal for the Planning Area under Alternative A. The vegetative management programs (i.e., wildlife habitat, forest and woodland, rangeland, riparian/wetland, and watershed) would lack a common set of long-term vegetative objectives. As a result, the PNCs might not be attained, even in the grass-shrub



lesser earless lizard

communities where the greatest likelihood of accomplishment during the life of the plan would exist.

Management of the soil, air and water resources would benefit watershed and vegetation, as would changes in livestock practices and the use of fire. Management for stabilizing watersheds would reduce overland water flow and promote water infiltration. As result, plant productivity would be expected to increase, allowing for progress in accomplishing vegetative objectives.

Vegetation--Forest & Woodland Resources

Under Alternative A, actions proposed to resolve the issues listed below would have no impacts on accomplishing the vegetative objectives for forest and woodland resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 3--Access & Transportation

Signing and enforcement of the off-road vehicle designations governing access would deter the unauthorized removal of wood products.

Issue 4--Wilderness Management

As a result of the “minimum tool” requirements, the cost of vegetative improvement projects such as fire would be higher in wilderness than in areas not subject to the same restrictions. The cost might not be prohibitive, but areas with fewer restrictions could receive higher priority for improvement.

Issue 5--Wilderness Suitability

Fire would be the only management action allowed to improve vegetation until after a Congressional decision on wilderness designation of the Chain of Craters WSA.

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Issue 7--Cultural Resources

When planning and designing forest and woodland improvement treatments, the BLM would make provisions to protect cultural resources. Use of fire could be prohibited in some areas.

Issue 9--Vegetation

For ponderosa pine to be reestablished in its natural habitat, the quantity of piñon-juniper trees would have to be reduced. However, under Alternative A, no forest and woodland management actions such as thinning would be proposed. The opportunity to restore ponderosa pine communities would be dependent on fire or disease. Prescribed fires and wildland fires under prescription would be used to prevent catastrophic fire and protect property. Resource enhancement would be a secondary benefit. Interpretation could increase public acceptance of fire as a vegetative management tool. However, overall the ponderosa pine community would continue to decline and the piñon-juniper woodland community would continue to expand in the open woodland/savanna locations.

Achieving the objectives for forests and woodlands would rely on wildland fires under prescription. Fire may not come within the life of the plan, but if it did, it could be cataclysmic because of the large fuel load that exists.

Vegetation--Rangeland Resources

Under Alternative A, actions proposed to resolve the issues listed below would not impact rangeland resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 2--Facility Development
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Construction of rangeland improvement projects (e.g., fences, pipelines, water wells) could be affected by recreational use. To protect visual resources, projects could be relocated, redesigned or not allowed.

Issue 3--Access & Transportation

Limiting vehicles to existing roads would have positive effects on livestock grazing management. Fewer acres of vegetation would be disturbed by vehicular use, preventing loss of forage. Increased forage from preventing road expansion would provide more ground cover to slow surface runoff and soil erosion.

Issue 4--Wilderness Management & Issue 5--Wilderness Suitability

Wilderness and WSA management would restrict vegetative management tools, making accomplishment of rangeland management objectives more difficult. Where range improvements were placed to increase rest, not use, vegetation could be improved for the benefit of wilderness character.

Issue 9--Vegetation

To ensure accomplishment of vegetative objectives, planned rest from livestock grazing management would be increased. As objectives were attained, increased quality as well as quantity of forage species would be expected. The abundance of grasses and desirable shrubs would improve. As these forage resources improved, livestock grazing rest periods could be better managed to ensure long-term vegetative improvements.

Rangeland improvements would continue to be built to allow improved patterns of livestock grazing use. However, the vegetative objectives would not be considered in AMPs/CRMPs. Minimum rest periods from livestock grazing use would continue to favor warm-season grasses. Cool-season grasses and desirable shrubs would continue to be under represented. As a result, vegetation would remain in the mid to high development stages and very few acres would reach the PNCs.

Grazing improvements including fences, wells, storage tanks, and dirt tanks create a long-term vegetative disturbance on 530 acres. Planned pipeline development and fence construction would create short-term disturbance on an additional 65 acres.

Management of fire and the soil, water, air, forest and woodland resources could produce some short-term inconvenience to livestock grazing management. For example, an area proposed for burning could require additional rest from livestock grazing use. To minimize the effect on ranching operations and benefit rangeland management in the long term, objectives and actions from these other programs must be proposed in AMPs.

Social & Economic Conditions

Under Alternative A, actions proposed to resolve the issues listed below would not have direct economic or social impacts. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

As measured in visitor use, recreational activity is based on traffic counts and an assumed average occupancy of 2.8 persons per vehicle. The BLM's traffic counts for the Planning Area are taken at La Ventana Natural Arch. Based on these figures, visitor use has grown by an average of nearly **11** percent per year between 1990 and 1996. The first three years showed rapid growth rates. In the last three years, growth rates have decreased, and it is expected that visitor numbers will continue to increase at a lower rate.

In 1999, a total of **81,000** visitors used the Planning Area. To calculate the economic impact of this visitation, an expenditure of \$65 per visit has been used. Based on these figures, visitors to the area

expend approximately **\$5,265.000** per year. It is assumed that this money turns over one additional time in the local economy before it leaves the county. Therefore, Cibola County receives nearly **\$10.5** million per year as a result of Planning Area visitor expenditures (direct and indirect). This is approximately 3.3 percent of the total personal income reported for Cibola County in 1997.

It is estimated that visitor expenditures would increase at about 5 percent per year for the next 10 years. The resultant income would increase at about the same rate (approximately **\$16,000,000** in 1997 dollars in 2010).

Recreation-related employment figures were estimated using the 5-year economic census series (U.S. Department of Commerce, 1992a & b, 1994b). Expenditures by Planning Area visitors contribute substantially to the employment of approximately 200 people in Cibola County. This employment figure is expected to reach 300 by the year 2010.

Issue 6--American Indian Uses & Traditional Cultural Practices

Social impacts related to American Indian concerns are not expected to be measurable under any of the alternatives. Sociocultural impacts would occur to the American Indian people who have used the area for religious and cultural purposes over the years and would not have the same level of access and use because of proposed development.

Issue 9--Vegetation

Livestock grazing can create direct economic impacts. The Planning Area includes 305,400 acres, 67 percent of which (205,000 acres) is useable for livestock grazing. At 12.6 acres per Animal Unit Month (AUM), these 205,000 acres would support 16,288 AUMs or the forage required to maintain 1,357 cows for a year. The New Mexico Agricultural Statistics (U.S. Department of Agriculture 1994) show receipts for nondairy cattle on farms as of January 1, 1994, in Cibola County at an average of \$627 per head. Using these figures, receipts from Planning Area livestock production would be approximately \$851,000 per year, or 11.3 percent of the cow and calf receipts in 1994 for Cibola County.

Summary

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Few social or economic impacts would occur from implementation of Alternative A. Impacts to minority and low-income populations and communities have been considered, with no significant impact anticipated.

Soil, Water & Air Resources

Under Alternative A, actions proposed to resolve the issues listed below would have no impacts on the soil, water and air resources of the Planning Area. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation & Issue 2--Facility Development

Management of the Planning Area for dispersed recreational use would result in less overall surface disturbance, soil erosion, and impacts to water and air than if the area was being managed for intensive, concentrated recreational use (as under Alternative B). Limited increases in surface runoff and erosion could be expected around existing facilities such as the Ranger Station, parking lots and picnic areas because of continued increases in visitor use.

Issue 3--Access & Transportation

Designating public lands in the Planning Area as limited or closed to off-road vehicle use would reduce surface disturbance and erosion. Providing reasonable access while attempting to reduce conflicts between users and prevent damage to the natural resources would reduce the incidence of willful violations and subsequent soil erosion.

Issue 9--Vegetation

Managing to reach the vegetative objectives discussed in Chapter 2 would have a positive impact on the Planning Area's watersheds. The amount of ground covered by vegetation is expected to increase, which would reduce the amount of soil surface area exposed to the forces of wind and water erosion.

To attain the vegetative objectives, forests and woodlands would be managed to contain trees of various ages. Changing the age structure would increase the number of openings between clumps of trees, allowing for increases of herbaceous growth under the trees and providing more developed, complex vegetative layers. As a result, surface runoff would be reduced and erosion decreased.

Changes in livestock grazing management would continue to be made where vegetative utilization and trend needed to be improved. AMPs/CRMPs containing specific watershed objectives would be developed for these areas. As a result of the changes in livestock grazing management, perennial herbaceous ground cover would increase, reducing erosion potential. Small erosion-control structures could also be developed to further reduce soil loss.

Wildland fires under prescription would be used as tool to help attain vegetative objectives. Immediately following burning, more ground surface could be exposed to the forces of wind and water, and thus to increased soil erosion. Following the burns, increased herbaceous vegetative ground cover would be expected. As a result, the opportunity for erosion would decrease. Smoke would impact air quality during burning, but no long-term impacts are expected.

Visual Resource Management

Under Alternative A, actions proposed to resolve the issues listed below would have negligible short-term or long-term impacts that would exceed the objectives of the VRM classes assigned to public lands within the Planning Area. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

Issue 1--Recreation

Dispersed recreational activities spread out over the Planning Area should have little noticeable impact on overall visual resources. Localized visual impacts from the destruction of vegetation, exposure of soil, and erosion would generally be associated with social trails, campsites, and vehicle pullouts where frequent and continuous recreational use occurred (usually away from key viewing points).

Visual resources on 211,800 acres of public lands would benefit through the assignment of VRM Class I and II management objectives. Application of these two classes would prevent activities that would create noticeable changes in the elements of form, line, color and texture found in the landscape.

The visual resources on 14,110 acres of VRM Class III lands would be subject to a greater degree of change. However, lands assigned Class III usually do not rank as high scenically, so change is usually not a sensitive issue. Impacts to visual resources on the remaining 22,000 acres of non-NCA public lands would be handled on a case-by-case basis. Mitigation would be applied to minimize potential impacts should a project be authorized there. Interpretation of the natural features through brochures and guided hikes would improve visitor appreciation of the scenic quality of the Planning Area and thus contribute to more careful visitation.

Issue 2--Facility Development

Existing recreational facilities would continue to be part of the landscape. The developed facilities and concentration of recreational use there would continue to create minor localized impacts to visual resources. However, when these facilities were built, the location, materials, colors and construction methods were considered. This helped to minimize visual contrasts and lessened the impacts.

Issue 3--Access & Transportation

The 354.5 miles of BLM-administered travel routes, along with state highways and county roads, would continue to provide visitors an opportunity to enjoy the quality of the visual resources in the landscape. The alteration of the landform and the disturbance to vegetation from these linear routes has created visual contrasts that would continue under Alternative A.

Issue 4--Wilderness Management

A total of 100,800 acres of designated wilderness or 41 percent of the public land in the Planning Area would be managed under the most restrictive VRM Class I. Management under this class would benefit the area's visual resources through restricting activities that would create visual contrasts evident to the casual observer.

Issue 8--Wildlife Habitat

The maintenance of wildlife exclosures to prevent disturbance of vegetative cover would benefit the visual resources of the Planning Area.

Issue 9--Vegetation

Use of the Planning Area by livestock has resulted in the presence of range improvements and trampling around them. Visual impacts from these developments would normally be very localized and would initially have greater impact in the short term than over the long term. The existing facilities would be acceptable under VRM Class II objectives. As forage conditions improved over the long term under management to meet vegetative objectives, visual resources would be enhanced.

Fire suppression over the years has created a buildup of natural fuels and the potential for a high-intensity wildland fire that would create a more obvious landscape change. The seriousness of this potentially negative impact on visual resources would depend on many variables, including fire intensity, size, fuels and location.

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Issue 10--Boundary & Land Ownership Adjustments

The acquisition of non-federal lands and mineral interests within the Planning Area would prevent developments that could be detrimental to visual resources. This would be in addition to the acquisition of scenic or conservation easements along approximately 76 miles of state and county highways and roads in the Planning Area, which would benefit visual resources by preventing development of structures or alteration of the landscape that would degrade the area's natural beauty.

Cumulative Impacts

Social & Economic Conditions

P.L. 100-225 provided for protection of traditional cultural uses and allowed a 10-year period for adjustments in livestock operations before grazing was excluded from the National Monument. No one is believed to have been forced out of the ranching lifestyle because of this exclusion.

Economically, 10 livestock operators have had their borrowing capacity reduced by approximately \$850,000 (total) because of the reduction of forage capacity in the National Monument portion of their ranching operation. The 10-year notice of loss of these AUMs has allowed for this change to be made in a manageable way.

Under Alternative A, visitors are expected to continue to spend an estimated \$6,630,000 annually (102,000 visits at \$65 per day) in the Grants area. These dollars are expected to turn over one additional time (the multiplier effect) in Cibola County, adding a total of \$13,260,000 to the local economy annually. This would amount to approximately 5 percent of the total personal income reported for Cibola County for 1994 (U.S. Department of Commerce, Bureau of Economic Analysis 1994a). A few employment opportunities have been created by NCA and National Monument designation, raising the standard of living for as many as 300 families.

Recreation

Visitors to the NCA have increased in the past few years, according to numbers from a counter

installed at La Ventana Natural Arch. Between 1990 and 1996, visitor numbers increased substantially (37,572 to 63,252; up nearly 83 percent), but the rate of growth has been slowing from near 50 percent in 1991 to 11 percent in 1996. NPS figures for National Monument visitation show a similar trend. Visits are expected to total 102,000 per year under Alternative A.

Vegetation--Rangeland Resources

Based on vegetative monitoring results, some short-term AUM adjustments would be implemented, most likely in the form of changes in management practices. It is expected that the adjustments would bring ecological changes that would result in the current Planning Area allotment preferences becoming sustainable in the long term.

A cumulative effect would result from earlier BLM adjustments being added to the National Monument adjustments completed in January 1998. In 1992 the BLM reduced the preference on one group of allotments from 33,067 to 31,372 AUMs (a decrease of 1,695 AUMs). As of January 1998, 6,476 AUMs in the National Monument were *not* available for grazing use. The total reduction was 8,171 AUMs, equal to the forage required by 681 cattle yearlong. Considered on a county-wide basis, this reduction affected less than 3.5 percent of the total cattle grazed in Cibola County.

Long-term vegetative disturbance would occur on 574 acres as a result of grazing improvements and recreation facilities development. Short-term vegetative disturbance would occur on 65 acres on a one time basis as a result pipeline installation and fence construction. Rehabilitation should be complete on these projects in two to three years. Fire is to be used as a vegetative improvement tool on approximately 1500 acres per year. This will have a short-term negative effect but after two to three years is expected to increase both the quality and quantity of vegetation on these acres. This acreage of improved vegetation would continue to grow as long as the treatment continues. The cumulative vegetative disturbance acreage would reach approximately 3640 acres (both short and long term). The increased quality and quantity acreage would reach several thousand acres because the improvements are expected to be effective for many years.

ALTERNATIVE B--RESOURCE USE

Recreation & Facilities

Under Alternative B, actions proposed to resolve the issues listed below would have no impacts on recreation or facility development, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management
- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

In general, opportunities would be more developed and better defined for those recreationists who enjoyed concentrated recreation (i.e., at specific, designated locations). Opportunities for visitors to experience solitude would remain as at present. Developed camping and picnicking opportunities would increase, as would hiking opportunities on up to 25 trails. Opportunities for horseback riding would remain similar to those at present, but access for horses would increase. Hunting opportunities would remain the same. Mountain biking opportunities would increase. Driving for pleasure and back-country driving opportunities would decrease slightly because an increase would occur in semi-primitive nonmotorized acreage. Numbers of back-country byway users could increase as the areas were improved and marketed. Visitors interested in cultural and/or historical properties would find up to 14 different opportunities for exploration. Watchable wildlife opportunities would be more clearly marked.

Issue 2--Facility Development

The facilities called for under Alternative B would directly affect how visitors perceived the recreational opportunities in the Planning Area. Some visitors would like the increased facility development and see it as improving the opportunities for recreation. Other visitors would have the opposite viewpoint. Many opportunities for dispersed recreation would still exist because only 58 acres (less than 1 percent of the Planning Area) would be disturbed directly by recreational developments. Developed

facilities for camping would likely draw more recreation users. The development of hiking trails would increase opportunities, from the approximately 36 miles under the No Action Alternative up to nearly 77 miles under Alternative B. Trailhead facilities would increase the opportunities for hikers, horseback riders, and mountain bike riders to enjoy the variety of trails or old roads available.

Opportunities for picnicking at developed areas would increase by 150 percent, as would those for driving into the back country for pleasure (with the designation of three additional back country byways). Under Alternative B, visitors with an interest in cultural or historical properties would find increased opportunities for learning about the past. More wildlife enthusiasts might be drawn to the Planning Area because opportunities for watchable wildlife would be identified. Entry identification signs would also likely increase the levels of recreation in the Planning Area.

Interpretation and public education would impact recreation and facilities by marketing the Planning Area and NCA through brochures, signs, kiosks and programs at the amphitheater, possibly increasing the numbers of recreationists who came to the area. Interpretation could assist in dispersing visitor use and changing visitor behavior so the impacts of many recreationists would not negatively impact the resources. In some cases, interpretation would help to influence public land users to be good land stewards.

Issue 3--Access & Transportation

Visitors would have access to recreational opportunities on 337.5 miles of road designated as open. This would decrease opportunities for recreationists who were interested in driving for pleasure or back-country driving. Signs and other interpretive information would clarify for visitors which roads were accessible and useable. Closing 5 percent of the Planning Area's roads to vehicle use (in addition to the roads closed by wilderness legislation) would decrease visitor access slightly. Access management under Alternative B would also increase the solitude for those wishing to participate in activities such as backpack camping, hiking, horseback riding and hunting because less acreage would be disturbed by vehicle intrusions.

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Issue 5--Wilderness Suitability

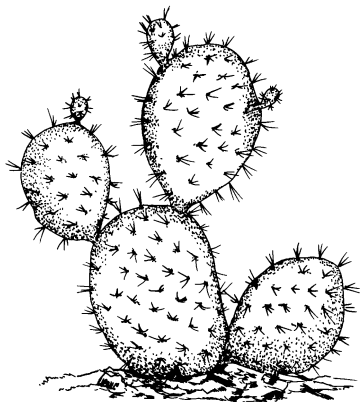
Not recommending the Chain of Craters WSA as suitable for wilderness designation would open it to recreational developments and increase opportunities for visitors interested in such developments. Driving for pleasure, hiking, and mountain biking opportunities would not be limited by a wilderness designation in this unit. Those recreationists who desired wilderness experiences would have more than 100,000 acres of Planning Area wilderness. Under Alternative B, the BLM would also recommend a net 3,490-acre addition to the Cebolla Wilderness, increasing the wilderness recreational opportunities to 105,290 acres.

Issue 7--Cultural Resources

Under Alternative B, the BLM would allocate up to 14 sites for public use, providing an increase in sightseeing opportunities for visitors interested in cultural or historical properties. Scientific investigations could occur at these sites and/or others, also increasing recreational opportunities. Stabilization and erosion-control projects would increase the likelihood that visitors would have opportunities to see historical and/or cultural properties in the future. Some recreationists would be attracted to sites with antiquities signs, while others would dislike this visual intrusion.

Issue 8--Wildlife Habitat

Increasing the quality and quantity of wildlife habitats would increase the opportunities for recreation. Working with state and federal agencies to reintroduce native wildlife and/or plant species would also increase viewing potential.



Issue 9--Vegetation

Under Alternative B, the BLM would increase the acreage of prescribed fires, decreasing the recreational opportunities for the short term (during the burn period and rehabilitation). (The impact would be greater than under the No Action Alternative, because more acreage would be burned.) Other actions to change the vegetative environment would likewise produce short-term impacts to recreation by restricting use to protect health and safety. Immediately after any treatment, some scenic disturbance would be noticeable by visitors and users. In the long term, recreationists would see increased vegetative diversity throughout the Planning Area. Long term improvements in vegetative health would increase recreational opportunities.

Issue 10--Boundary & Land Ownership Adjustments

If the Congress followed the BLM's recommendations for boundary changes, the total land acreage in the NCA (including non-public land) would increase by 9 percent to 288,300 acres, and in wilderness by 3.4 percent to 105,290 acres. This larger area would provide increased recreational potential.

Access & Transportation

Under Alternative B, actions to resolve the issues listed below would have negligible impacts on access and transportation. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Motorized access opportunities would be available on 143,560 acres through the use of 337.5 miles of designated travel routes. For those who preferred areas away from such use, 104,450 acres of public land would be available.

Access by up to 25 trails would be enhanced for those who preferred such use, although many of these trails would have specific cultural sites as their destination point. Users would also benefit from the construction of trailhead facilities, including some for horseback use and mountain biking. Trails designated for mountain bike use would enhance this experience and reduce conflicts among users.

Issue 2--Facility Development

Providing parking areas and improving existing motor vehicle access to the new campground in the Spur Unit and the trailhead for the Dittert Site would improve access to services and features in the Planning Area, as would parking facilities and trails to about 14 cultural and historical sites. Facilities to accommodate horseback use at the Armijo Canyon, Narrows, Hole-in-the-Wall, and Cerro Brillante CDNST trailheads would also improve access.

Issue 3--Access & Transportation

Motorized access opportunities would be diminished by increasing the amount of land closed to motor vehicle access (about 104,450 acres). Cross-country travel by motor vehicle would be lost on 12,000 acres as a result of the BLM restricting travel to designated routes.

Issue 4--Wilderness Management

An additional 3,650 acres would be closed to motor vehicle use through expansion of the Cebolla Wilderness.

Issue 5--Wilderness Suitability

If the Chain of Craters WSA was not designated as wilderness and was released from further wilderness review, motorized access opportunities would continue but be diminished through limiting use to designated travel routes. Closure of 2.3 miles of travel routes, or 5 percent of those inventoried within the WSA, would also decrease access.

Of the lands contiguous to Cebolla Wilderness, 3,650 acres recommended for wilderness would eventually be closed to motorized and mechanical forms of transport, if the Congress designated them. Pending Congressional designation, motor vehicle access would be limited to designated routes. The

BLM would manage the remaining contiguous lands under the vehicle designation of "limited." Motor vehicle use would be restricted to designated travel routes.

Issue 7--Cultural Resources

Development of parking and trails at additional cultural sites would enhance visitor access opportunities there.

Issue 9--Vegetation

For user and visitor safety, access would be prohibited for short periods of time when prescribed fires were conducted.

Summary

The direct impacts of actions taken under Alternative B on access opportunities would depend on the user's preferred or required method of travel. For those who preferred nonmotorized methods of travel, the entire Planning Area would be available. However, nonmotorized access opportunities would be enhanced on 42 percent of the Planning Area as a result of wilderness designation, because motorized vehicles and mechanical forms of transport would be prohibited. For people who preferred or were limited to motorized or mechanical means of transport, access on 337.5 miles of BLM-administered, designated travel routes would be provided to 58 percent of the public lands in the Planning Area.

An increase in BLM-provided campgrounds, parking lots, trailheads and trails would enhance the opportunity to access public lands and features within the Planning Area. However, certain areas of public lands could be closed for a few days for vegetative treatments or the practice of traditional American Indian activities.

Wilderness Management

Under Alternative B it is assumed that an additional 3,650 acres of public land in the Planning Area suitable for wilderness would be designated by the Congress.

Actions proposed to resolve the issue listed below would have negligible impacts on wilderness

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management. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management

Issue 1--Recreation

The additional 3,650 acres of public land in wilderness would benefit visitors who wished to experience this type of setting for primitive and unconfined recreational use.

Issue 2--Facility Development

Additional trailhead facilities located adjacent to the two wildernesses would improve accessibility and encourage use by providing a convenient place for visitors to begin their trip. The existence of several trailhead facilities to access wilderness would improve the opportunity for users to be dispersed, decreasing the potential for encountering other users and maintaining opportunities for solitude.

Issue 3--Access & Transportation

Approximately 6 miles of authorized access routes in the Cebolla Wilderness and 18 miles in West Malpais would continue to serve livestock permittees and owners of private inholdings. Access for development of non-federal mineral interests would be dealt with on a case-by-case basis. No undue or unnecessary impacts would be anticipated from mineral development.

Issue 5--Wilderness Suitability

The manageability and recreational use of the Cebolla Wilderness would benefit from the designation of an additional 3,650 acres of suitable public land.

Issue 6--American Indian Uses & Traditional Cultural Practices

Closure of lands for privacy in conducting traditional practices would displace the primitive recreational use of that area during the closure period (expected to be no more than a few days per year). Infrequent use of a motor vehicle (i.e., once every 2 to 3

years, for no more than a day) by American Indians whose mobility depended on such use to carry out traditional cultural practices would be considered non-impairing and the "minimum tool." Consultation between the BLM and American Indians would be needed before formal closure and authorized use of a motorized vehicle.

Issue 7--Cultural Resources

Should new stabilization or erosion-control projects be needed because of the threat of losing cultural resources of high value, they would be accomplished using the "minimum tool."

Issue 8--Wildlife Habitat

The use of motor vehicles and motorized equipment to maintain existing wildlife projects would be restricted. Any noise and view of vehicles in wilderness would have a negative impact on the user's experience.

Construction of wildlife facilities would be inconsistent with the free operation of natural processes, but could be needed for the continued existence or welfare of wildlife living in the wilderness. With consideration of their design, placement, duration, and use, certain permanent installations would be permitted to maintain conditions for wildlife. These would be allowed only if the resulting change was compatible with the preservation of wilderness character and the installation was the "minimum tool" needed.

Issue 9--Vegetation

The development of AMPs/CRMPs and the management of livestock to improve forage conditions would benefit wilderness through enhancing its natural character.

Actions to suppress wildland fires in wilderness could alter the natural landscape and disrupt the opportunities for solitude and primitive recreation. The severity of impacts is not measurable, but suppression actions would be done to minimize surface disturbance and disruption of wilderness resources and uses. In the long term, any short-term disturbance from fires could benefit vegetation through improved plant

diversity and the return of natural ecological processes.

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Issue 10--Boundary & Land Ownership Adjustments

Acquisition of non-federal surface (800 acres) and subsurface mineral interests within the boundary of the two wildernesses would enhance wilderness management and values through eliminating detrimental development. Excluding approximately 200 acres of land on the Cebolla Wilderness perimeter owned by the Acoma Pueblo would enhance wilderness management by excluding non-federal lands.

Summary

Under Alternative B, the wilderness resource would benefit from the addition of 3,650 acres of public land designated by the Congress. Designation would benefit opportunities for primitive and unconfined recreation by increasing the amount of public land in the Planning Area available for this type of use to 42 percent. Acquisition of private surface and subsurface inholdings would benefit the manageability of these areas, eliminating the need to provide access and the potential for activities that would degrade the area's naturalness.

Wilderness Suitability

It is assumed that the Congress would accept the BLM's recommendation and release the entire 18,300 acres within the Chain of Craters WSA from further wilderness review. It is also assumed that the Congress would designate 3,650 acres contiguous to the Cebolla Wilderness. The 6,730 acres of public land found to be unsuitable would be released from interim management (by the BLM State Director under Section 202 of FLPMA, 30 days after the decision record is issued for this El Malpais Plan).

Under Alternative B, actions proposed to resolve the issues listed below would have negligible impacts on wilderness suitability. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 2--Facility Development
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Through continued use of travel routes and vehicle noise, motorized recreational use of the Chain of Craters WSA would impair the naturalness, opportunities for solitude and primitive and unconfined types of recreation.

Issue 3--Access & Transportation

Use of 44.2 miles of vehicle routes in the Chain of Craters WSA by motorized equipment and vehicles would have a negative influence on the opportunities to experience solitude and maintain a natural environment. To prevent resource damage and deterioration of these designated routes, periodic maintenance would be required, which would impact the naturalness of the area and disqualify it as roadless.

Issue 9--Vegetation

The installation of any new range improvements for livestock management would adversely impact wilderness values if frequent motorized access was required. If done by mechanical means, vegetative treatments and periodic maintenance would also impact wilderness values, especially naturalness.

American Indian Uses & Traditional Cultural Practices

Under Alternative B, actions proposed to resolve the issues would have the following impacts on the uses and traditional cultural practices of American Indians in the Planning Area.

Issue 1--Recreation

As discussed under Alternative A above, dispersed recreation would continue to increase over the life of the plan. Under Alternative B, such use would likely increase more because recreation would be encouraged. Dispersed recreation would conflict with traditional American Indian uses if visitors intruded into these activities or took items left as offerings. In particular, horseback riding, mountain biking and picnicking could conflict with American

Indian uses. Under Alternative B the probability of such incidents would continue to increase.

The Ramah Navajos have identified the Chain of Craters, including portions of the CDNST, as sensitive. No specific conflicts with other recreational locations emphasized under Alternative B would be expected. However, lava tubes, mountain peaks, archeological sites, and springs are sometimes important in American Indian traditional belief and practices.

Issue 2--Facility Development

No conflicts from establishment of recreational facilities would be expected with traditional American Indian uses in the Spur Unit, nor from the construction of five major trailheads at Cerro Brillante, Cerro Americano, The Narrows, West Malpais, and Armijo Canyon. Primitive trailheads would provide access to the Pinole Site, the Cebolla Canyon Community (including The Citadel), Lobo Canyon Petroglyphs, Aldridge Petroglyphs, Stone House, West Malpais Schoolhouse (from the Cerro Brillante Trailhead), and other properties (refer to Table 2-9). These facilities would concentrate recreational use, resulting in increased visitation nearby. Although no specific conflicts with American Indian uses are known, archeological sites, mountain peaks, and springs are often important to Indian people.

A total of 40.5 miles of new trails (from the trailheads discussed above) and 19 miles of closed roads would be available for hiking and horseback riding. Construction of specific routes would be preceded by site-specific EAs, and closely coordinated with American Indian groups who have close ties to El Malpais. Routes could be designed to direct recreational users away from sensitive locations.

Most routes outside wilderness could also be used for mountain biking. If such use began to result in environmental damage, specific bike trails would be established in the Chain of Craters, Cerritos de Jaspe, and Brazo Units. Of these, the Chain of Craters has been identified as sensitive by the Ramah Navajos.

Issue 3--Access & Transportation

It is common for vehicles to be driven off

established roads during piñon gathering and other traditional activities. Under Alternative B, no off-road vehicle use would be allowed, all vehicle use generally would be prohibited in wilderness, and vehicle use would be limited to designated roads and trails on 144,000 acres of the Planning Area. About 19 miles of existing roads and trails would be closed under this alternative, with the remaining 337.5 miles remaining open. Limitation of vehicle use to existing roads and trails would increase privacy but decrease accessibility.

Most of the roads to be closed are short segments that duplicate existing access. The closures would affect areas to the east of Cerro Negro, where some areas currently accessible by vehicle would be a mile or so from an open road. The closure would also affect access to Navajo Cave, an ice cave in the National Monument that would no longer be accessible from the east (Cerritos de Jaspe area). Neither of these locations are known to be important in traditional American Indian practice, so these closures would have no effect.

Issue 4--Wilderness Management

Under the Resource Use Alternative, American Indians would be allowed to access specific places within the Cebolla and West Malpais Wildernesses by vehicle under certain circumstances. It would have to be shown that, because of the physical condition of mandatory participants or other factors, vehicle use would be the "minimum tool" required for access. Other factors such as frequency and duration of visits would have to be taken into account to ensure that vehicular use would not result in degradation of wilderness qualities.

Issue 5--Wilderness Suitability

Release of the Chain of Craters from WSA status would facilitate access for American Indians by allowing continued vehicle use along designated roads and trails. Addition of 3,650 acres to the Cebolla Wilderness would limit vehicle use there, and increase the amount of walking needed for activities such as gathering piñon nuts.

Issue 7--Cultural Resources

Under Alternative B, applications for five to eight scientific investigations involving collection or

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excavation at prehistoric sites would be expected. This is a higher level of activity than would be anticipated under any other alternative. The Pueblo of Acoma recognizes all prehistoric sites in the Planning Area as ancestral places, and in their traditional belief considers that any excavation or collection would have a negative effect. By law the BLM is required to consult with American Indians before undertaking such a project, but is not absolutely bound to conform to their wishes. If permits for these activities were granted, adverse impacts to traditional practices would result.

Some traditional American Indian people also regard active management of prehistoric archeological sites as intrusive. Under Alternative B, the BLM would undertake 7,745 acres of cultural resource inventory, post 200 antiquities signs, maintain stabilization projects at three prehistoric sites, undertake erosion control measures at up to 25 other sites, and consider additional stabilization of prehistoric ruins. Some or all of these actions could constitute an adverse effect under traditional belief.

Provisions would be made for permitting collection of prehistoric pottery shards for use in traditional ceramic manufacture. This would allow members of Acoma Pueblo to maintain this connection with their ancestral past. However, the permitting process itself would be considered intrusive, so it would be likely that this activity would decrease under Alternative B.

Issue 8--Wildlife Habitat & 9--Vegetation

Prescribed fires and wildland fires under prescription would increase long-term vegetative diversity, but the effect of this activity on specific plants used by American Indians in El Malpais is not known. Chemical treatments of noxious weeds would be of concern to American Indians gathering wild plants, and so would have to be closely coordinated with any group using the area for this purpose. Springs are sometimes important places in traditional American Indian belief, so special attention would be given to American Indian consultations when springs were fenced to improve riparian areas.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of the CDNST treadway would increase recreational use around the Chain of Craters, which is a sensitive area for the Ramah Navajos. Addition of 3,650 acres to the Cebolla Wilderness would restrict vehicle use there, including for traditional practices.

Summary

As under any alternative, increasing recreational use would be one of the most serious and pervasive impacts on traditional American Indian practices in the Planning Area. It would create long-term negative impacts by reducing privacy for traditional activities and increasing the likelihood of non-Indian intrusions into them. Dispersed recreational use would probably increase more rapidly under this alternative than under the other alternatives, because more recreational emphasis is proposed (e.g., increased interpretation, maintenance and signing of the Chain of Craters Back Country Byway, and development of recreational facilities--refer to Map 11). More recreational facilities are proposed under Alternative B than exist under Alternative A (Existing Management) or are proposed under Alternatives C or D. Several proposed facilities would accommodate increased use in the Chain of Craters WSA, which has been identified as sensitive.

More vehicle access would be allowed under Alternative B than under any other except Alternative A. This would increase the ease of access for traditional activities, but reduce privacy. Vehicular access into wilderness for traditional American Indian practices generally would not be allowed.

Some activities and decisions proposed under Alternative B could have other negative impacts. Archeological research involving excavation, signing, ruin stabilization, and erosion control intended to protect ruins could be considered intrusive by some traditional people. Collection of prehistoric pottery for use as temper would be allowed, but only through a formal permitting process. Chemical treatment to alter the Planning Area's vegetative communities could adversely affect people who were gathering herbs and other plant products. Thinning of piñon-juniper stands would be allowed under this alternative, so fuelwood may be available in some years,

although available quantities may be insufficient to meet demand. Depending on availability of alternative sources, prohibitions on fuelwood gathering outside the thinned areas may also be an adverse effect.

Certain Acoma Tribal lands (960 acres) are recommended for exclusion from the Planning Area under this alternative. If the Congress and the BLM added other lands to the Planning Area through acquisition and expansion, the positive and negative impacts outlined above would apply to those lands. Some ongoing uses such as fuelwood and piñon nut gathering would become more restricted, but the prohibition of incompatible uses such as commercial fuelwood sales and mineral extraction would have a positive impact on American Indian uses.

Cultural Resources

Under Alternative B, actions proposed to resolve the issue listed below would have no impacts on cultural resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

Proposals that resulted in increased visitation would result in more unauthorized surface collection and casual excavation of prehistoric sites, although the extent of these impacts cannot be quantified. Impacts from recreational use that was concentrated in defined areas or corridors would be more easily mitigated and controlled, but impacts from dispersed use to cultural resources would be more difficult to counter.

This alternative generally would allow dispersed recreation, but would emphasize development of facilities that could result in more concentrated use at certain locations. These facilities include a developed campground and an additional 40.5 miles of hiking trail. If these areas were surveyed, with their cultural resources documented and avoided, designation of specific camping areas and hiking trails could be beneficial. Adverse effects that could result from more dispersed use could be partly mitigated by public education, as well as archeological survey and documentation.

Under Alternative B, the BLM would encourage public visitation at numerous cultural sites in the Planning Area. Documentation would be sufficient to protect scientific values at the Dittert Site and at most of the five homesteads to be emphasized, although the physical structures at all of these sites would require increased maintenance under this alternative. Additional documentation and increased maintenance would be needed at the two historical schoolhouse sites. Systematic documentation would be needed at the Aldridge Petroglyphs and the Lobo Canyon Petroglyphs, with both documentation and data recovery at the Pinole Site and The Citadel. Data recovery through systematic collection of surface materials would be needed at the Ranger Station Reservoir and Cebolla Canyon Community. Similar measures would probably be required at 10 additional sites if this alternative was selected.

Numerous undocumented archeological sites near the Aldridge Petroglyphs would be subject to secondary impacts such as surface collection if public visitation increased. Other recreational activities would have little impact on cultural resources, including horseback riding, mountain biking, sightseeing, pleasure driving, and wildlife viewing. Similarly, proposed VRM-related actions would not affect cultural resources.

Issue 2--Facility Development

Under Alternative B, the BLM would develop a number of hiking trails and other facilities that would encourage use of the western portion of the Planning Area, which is characterized by very low archeological site densities. These facilities would benefit

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cultural resources by drawing public use away from more sensitive areas.

Development of an additional 40.5 miles of hiking and mountain biking trails would focus visitation onto particular routes that could be modified to avoid important cultural resources. Similarly, construction of picnic areas would focus use and reduce the impacts that would occur with dispersed use. Construction of kiosks and horseback trailheads easily could be planned to avoid impacts to cultural resources. However, if the presence of trailheads encouraged dispersed use, increased adverse impacts to cultural resources such as illegal surface collection and pedestrian trampling could result.

Building a campground and amphitheater with associated facilities in the Spur Unit would require careful choice of location. This is a sensitive area, and construction here could expose important and currently poorly documented cultural resources to impacts from illegal surface collection, vandalism, and human trampling. In addition to the Class III surveys required for this project, before construction a reconnaissance survey should attempt to locate all structural sites that would be likely to receive increased day use. Baseline condition information should be established for these sites, and if any noticeable change in their condition occurred as a result of increased visitation, appropriate mitigating measures would be taken. Possible mitigation could include data recovery, redirection of public use through signing and establishment of trails, and formal closure of sensitive areas to public entry.

Issue 3--Access & Transportation

Under Alternative B, no off-road vehicle use would be allowed. This prohibition would benefit cultural resources because unrestricted, off-road vehicle use could result in direct damage (as vehicles ran over archeological sites), and could also lead to erosion that would cause damage.

Outside wilderness, approximately 19 miles of existing roads and trails would be closed, with the remaining 337.5 miles remaining open. With the possible exception of two short segments in the Spur Unit, none of the closures would affect areas of sensitive cultural resources.

Issue 4--Wilderness Management

Impacts to cultural resources under Alternative B would generally be the same as those described above for Alternative A. Extractive activities such as artifact collection and excavation would be allowed to cause short-term impacts to visual, vegetative and other natural resources, but only if long-term impacts could be mitigated.

Issue 5--Wilderness Suitability

Few cultural resources are thought to exist in the Chain of Craters WSA, so little practical impact would be anticipated if the area was released from wilderness review. If the Congress acted on the BLM's recommendation to add 3,650 acres to the Cebolla Wilderness, the impacts discussed above under Issue 4 would apply to the cultural resources there.

Issue 7--Cultural Resources

This alternative would emphasize the use and active management of cultural resources. Provisions that would directly benefit cultural resources include increased inventory requirements and an aggressive, proactive inventory program, increased current scientific information, posting of 200 antiquities signs, acquisition of access and consolidation of ownership, monitoring, stabilization, erosion control and fire suppression. The addition of the Breaks Non-NCA Unit, if implemented by the Congress, would bring hundreds of sites under more active management.

Scientific investigations, which actively would be encouraged under Alternative B, would provide current scientific information, but in some cases, would destroy portions of the affected sites, leaving them unavailable for research using future technologies and approaches. This would be a negative long-term impact to particular properties, but at the levels anticipated under this alternative (probably no more than eight projects), would not affect the long-term scientific potential of the Planning Area as a whole.

Under Alternative B, provisions would be made to allow collection of prehistoric pottery for use as temper in the manufacture of contemporary pottery. This collection would be preceded by systematic

archeological documentation, but it is likely that some information would be lost.

Interpretation would increase public awareness and appreciation of cultural resources, but would inevitably result in loss of surface artifacts at the Dittert Site, Ranger Station Reservoir, Pinole Site, The Citadel, and Cebolla Canyon Community. Sufficient documentation exists for surface artifacts at the Dittert Site and Cebolla Canyon Community, but without mitigation, active onsite interpretation at the other three sites would have long-term adverse impacts on their scientific values.

Issue 8--Wildlife Habitat

Prairie dog enhancement is proposed for an area at the mouth of Cebolla Canyon near the Cebolla Canyon Community. It is expected that the animals would remain in areas with fine, valley-bottom sediments, away from the prehistoric resources. However, the animals' location should be monitored, and if they encroached into the area of prehistoric ruins, appropriate corrective measures would be taken.

Issue 9--Vegetation

Piñon-juniper thinning would result in concentrated human use, increased likelihood of surface collection, and surface disturbance through vehicle traffic and dragging of wood during loading. Therefore, Class III cultural resources inventory and avoidance of vulnerable cultural resources would be required before thinning began.

Erosion affecting cultural resources would undoubtedly continue, but would be reduced by improved grazing management under the Resource Use Alternative. Eight historical homesteads in the Planning Area have been fenced to exclude livestock, and this alternative would provide for additional fencing if warranted.

Range improvements, spring developments, and watershed structures proposed under Alternative B would be subject to environmental assessment, and their potential adverse effects mitigated through avoidance or data recovery. Similarly, chemical, mechanical, and biological vegetative treatments

under this alternative would be of small scale and would be evaluated on a case-by-case basis through separate EAs.

Prescribed fires and wildland fires under prescription could destroy historical sites with flammable elements, and damage the scientific potential of surface and near-surface archeological materials. Activities associated with fire suppression such as establishment of fire camps and construction of fire lines could also result in adverse impacts to cultural resources. Under Alternative B, 8 to 12 historical sites have been identified as high-priority fire suppression zones, and other newly discovered sites could be added to this list. Reconnaissance-level surveys looking for sites with flammable materials would be conducted in areas where prescribed fires were proposed. These areas would not generally be inventoried to Class III standards if they had low site density (refer to Map 37). Class III inventory would be considered in zones of high site density, and a cultural resource advisor would be required during fire suppression activities, regardless of the source of ignition.

Issue 10--Boundary & Land Ownership Adjustments

Expansion of the NCA to include the Breaks Non-NCA Unit would add numerous significant Anasazi ruins to the NCA, providing them with a higher level of protection and more intensive management. (Such expansion would require that the Congress amend the NCA boundary through legislation.)

The easements and acquisition of inholdings proposed under Alternative B would also benefit BLM efforts to manage cultural resources by improving access and consolidating ownership. However, under this alternative, the non-NCA lands would remain subject to mineral entry, increasing the possibility of inadvertent damage to cultural resources.

Changes in the Cebolla Wilderness boundary would bring an additional 3,650 acres into wilderness, with the effects discussed under Issue 4 above. Realignment of cherry-stemmed roads in the Cebolla Wilderness would be subject to a site-specific EA and NHPA compliance. If cultural resources were likely to be affected by this activity, appropriate avoidance or other mitigating measures would be adopted.

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Summary

NCA designation and the provisions of this plan would protect cultural resources from damage as a result of deliberate, planned actions. However, natural and human factors would continue to degrade these resources. Natural deterioration would affect historical homesteads, while gully and sheet erosion would affect archeological sites. Both archeological and historical sites would continue to be vulnerable to illegal collection, looting, and vandalism. Illegal surface collection would continue to be primarily an unintended effect of recreational use, which would especially be encouraged under Alternative B. This impact would be partly mitigated by positive interpretive messages and building recreational developments in non-sensitive areas. Documentation of archeological sites before they have been seriously affected by surface collection would also partly offset the adverse effect of recreation.

Restriction of vehicle use to existing roads and trails throughout the Planning Area would help protect cultural resources. Cultural resource stabilization, erosion control, patrol and monitoring would be most extensive under Alternative B (although still restricted in wilderness). Archeological research that involved collection and/or excavation would be actively encouraged, which would increase current knowledge at the expense of future research potential.

Wildlife Habitat

Under Alternative B, actions proposed to resolve the issues listed below would have no impacts on wildlife habitat, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraph following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

Issue 1--Recreation

Five trails (at the Ranger Station Reservoir, The Narrows, La Ventana Natural Arch, Hole-in-the-Wall, and along the Continental Divide) would be emphasized as the primary areas for hiking activities under this alternative. The impacts of use on these five trails would be that same as those identified under

Alternative A. Under Alternative B, the increased emphasis on developed recreational opportunities (e.g., hiking, camping, interpretive tours, horseback riding, mountain biking) would result in additional impacts to wildlife and/or their habitats over those described for Alternative A.

Dispersed camping, hiking, picnicking, horseback riding, and mountain biking outside established recreation sites and trails would be temporary activities that occurred infrequently in any one area. These activities would create short-term impacts that could disturb wildlife species in the immediate vicinity of the activity (e.g., birds flushed from trees, rabbits from bushes), but would not be anticipated to cause any long-term impacts. It is estimated that wildlife would be disturbed on 1,280 acres per year from these activities.

Interpretive programs and activities (e.g., hikes, walks, Ranger talks and tours) would generally be concentrated in high-use recreation/camping sites and at specific homesteads and archeological sites. The anticipated impacts would include crushing of approximately 4 acres of vegetative wildlife habitat from foot traffic (¼ acre per site at 14 sites) and a wildlife disturbance zone of approximately 560 acres (40 acres per site) within the immediate vicinity of the activities.

Issue 2--Facility Development

Expanding recreational facilities more than under Alternative A (a campground, 20 trails, 13 trailheads) would result in a direct loss of an additional 32 acres of wildlife habitat from development, and a broader area of wildlife disturbance of 6,400 acres from human use of the area (refer to Table 4-1). Development of a campground in the Spur Unit would directly destroy 10 acres of wildlife habitat and create a disturbance area of approximately 640 acres. The 20 trails would average about 2 miles each in length. The anticipated impacts would include disturbance of approximately 13 acres of habitat from foot traffic (¾ acre per mile) and a wildlife disturbance zone of approximately 3,200 acres (80 acres per mile) within the immediate vicinity of the trails.

Trailheads and limited parking (for 4 to 6 vehicles each) would be developed for 11 sites, causing direct habitat loss of approximately 3 acres (¼ acre

each) and a zone of disturbance on 1,920 acres (160 acres each). Four additional trailheads would be developed, with parking for 10 vehicles each at two sites, 20 vehicles at one site, and 25 vehicles at one site. The direct loss of approximately 4 acres for parking and a 640-acre zone of disturbance would occur from the establishment and use of these trailheads and parking.

In addition to the treadway for the CDNST, the BLM would build two primitive trailheads near Cerro Americano and Cerro Brillante, with graded parking for 30 vehicles at each location. These trailhead parking areas would cause a long-term loss of 3 acre of habitat (approximately 1½ acres for each site). Wildlife disturbance would occur over approximately 320 acres (160 acres for each site) near the trailheads.

The designation of three new back country byways and the expansion of the existing one along CR 42 would increase the direct effects to wildlife habitat from vegetation loss and soil disturbance caused by vehicles and other human activities. In addition, increased disturbance (e.g., noise) would be anticipated to occur. Along 337.5 miles of roads available for use under Alternative B, habitat degradation would continue to occur.

New entry signs, watchable wildlife signs, and kiosks would be built for the new and expanded back country byways under Alternative B. The 16 kiosks, which would include pullouts for 4 to 6 vehicles each, would cause a direct loss of approximately ¼ acre each, for a total of 4 acres. The zone of disturbance around these kiosks would be 640 acres totals (40 acres each). A large identification sign built along I-40 would cause habitat loss of about 100 to 200 square feet. Because all these developments would be installed along established roads, however, the direct impacts would be less than if installation was in newly disturbed locations.

Issue 3--Access & Transportation

Under Alternative B, 337.5 miles of roads outside wilderness would be open to motor vehicle use (refer to Table 2-11). Routes within wilderness would remain closed or limited for administrative purposes, and an additional 19 miles of roads outside wilderness would be closed. The lands adjacent to the closed roads would not be subject to vegetation loss and soil disturbance caused by vehicles and other

human activities. In addition, these roads would eventually revegetate and provide additional habitat with reduced disturbance to wildlife populations within the area. The wildlife habitat along roads that remained open would continue to be degraded by vehicles and other human activities.

Issue 4--Wilderness Management

The impacts would be the same as those identified under Alternative A.

Issue 5--Wilderness Suitability

As identified in Alternative A, not recommending for designation 6,730 acres of existing and acquired lands contiguous to the Cebolla Wilderness would eliminate any special protections under the Interim Management Policy. However, because this area is recommended to be included within the NCA, appropriate protective measures under P.L. 100-225 are already available to protect and enhance wildlife habitat within the area.

Issue 8--Wildlife Habitat

The acreages identified under Alternative A for direct impacts and zones of disturbance would be the same under Alternative B. The description of water developments, fences, and vegetative manipulations as identified in Appendix P would also be the same.

In addition to maintaining the three existing habitat improvements (described under Alternative A), the BLM would undertake up to seven additional projects per year, for a total of up to 10 annually throughout the Planning Area. These would include four prescribed fires and one wildland fire under prescription (refer to discussion under Issue 9, Vegetation below) and five other projects (three water developments, a prairie dog colony enhancement area, and a riparian fencing development).

The prescribed fires would average approximately 750 acres each in size and the wildland fire 1,000 acres. The water developments (1,500-gallon rainwater catchments) would be installed within the Cerro Brillante Unit (T. 6 N., R. 12 W., Sec. 31, SE¼; 33, NE¼; and 35, NE¼). The long-term loss of habitat would be approximately 1,200 square feet (.02 acre) of grassland. Short-term impacts would include the crushing of vegetation by vehicles and foot traffic

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during construction, and the disturbance of wildlife (e.g., birds, small mammals, reptiles) within the immediate vicinity of the site.

The prairie dog colony enhancement project would use 1,000 acres total, including the south half of the North Pasture, and the Head Pasture of the El Malpais Allotment (Breaks Unit). Enhancement of the area for prairie dogs would help support two special-status species inhabiting the area (the burrowing owl and mountain plover). If the colony was able to expand to an appropriate size (about 200 acres), this area would also be a potential release site for the black-footed ferret, one of the most endangered mammals on earth.

Prairie dogs prefer areas with short vegetative cover, which allows them to view predators and maintain a complex social system (Fagerstone and Ramey 1996). The dogs modify the grasslands in a similar manner as grazing cattle do, by feeding on grasses and clipping unpalatable plants to ground level (*ibid.*). Livestock grazing would be allowed in this area because even intense use of this kind has no negative impact on prairie dog colonies. In fact, Fagerstone and Ramey found that prairie dog burrow densities in the Conata Basin of South Dakota increased twice as fast on sites grazed by cattle as on ungrazed sites. In well-established prairie dog colonies, large areas of bare soil are common (*ibid.*).

This wildlife project could prevent the achievement of the appropriate vegetative community on the North and Head pastures of the El Malpais Allotment. However, for the following reasons, the project would have a minimal impact on achieving the overall vegetative objectives within the Planning Area: (1) this area is at the bottom of the watershed and is essentially flat with very little relief, so the erosion potential is low; (2) these pastures are part of a closed basin with no runoff into other watersheds (again, with low erosion potential); and (3) these pastures, being at the bottom of the watershed, are already disturbed annually by soil deposition from normal runoff.

The BLM would fence 1 to 1½ miles of riparian habitat along Cebolla Canyon. This area is one of the

few small perennial streams sections within the Planning Area, and consequently is considered as sensitive wildlife habitat. Approximately 10 acres of habitat within the fence would be excluded from livestock grazing.

In addition to those projects already identified under Alternative B, the BLM would propose new wildlife projects to maintain and/or enhance existing habitats. These would disturb approximately ½ acre per project (3 acres per year), for a total of 60 acres over the 20-year life of this plan (refer to Table 4-1).

Issue 9--Vegetation

The general description of vegetative manipulations to accomplish vegetative objectives, which would create both beneficial and negative impacts to wildlife and their habitats, are identified under Alternative A ***except that grazing improvements including fences, wells, storage tanks, and dirt tanks create a long-term vegetative disturbance on 530 acres. Planned pipeline development and fence construction would create short-term disturbance on an additional 65 acres.***

Under Alternative B, an increased emphasis would be placed on vegetative treatments with the use of livestock grazing management practices, forest and woodland practices, prescribed fires and wildland fires under prescription, and structures (e.g., fences). Additional benefits, both short- and long-term, would be anticipated over those that would occur under Alternative A.

Piñon-juniper thinning would be emphasized under Alternative B, with ***for the propose of this analysis*** 100 acres to be conducted annually to meet vegetative objectives. This would cause short-term disturbances to wildlife habitat, but would have long-term benefits by opening up the closed piñon-juniper canopy and thus increasing vegetative diversity.

Prescribed and wildland fires would be used to accomplish vegetative objectives for forests, woodlands, and shrub-grasslands. ***It is anticipated that*** five prescribed and wildland fires ranging in size from 50 to 1,500 acres each could be expected each year under

Alternative B (averaging about 750 acres each for prescribed fires and 1,000 acres each for wildland fires under prescription). These would be the same fires identified under Wildlife Habitat above.

Riparian management would be implemented using both exclosures and grazing management practices, although grazing practices would be the preferred option to accomplish properly functioning condition. No planting of riparian species or removal of exotic species would be undertaken under Alternative B.

Issue 10--Boundary & Land Ownership Adjustments

As identified under Alternative A, acquiring lands by consolidating private inholdings into BLM administration would benefit wildlife through improved manageability, especially if the acquired lands contained sensitive habitats. Under Alternative B, additional lands not identified in the Land Protection Plan would be acquired if owners were willing to sell.

Summary

Under Alternative B, activities associated with recreation, interpretation, and facility development would result in long-term destruction of 61 acres of wildlife habitat. Near areas with high human use levels or developed facilities, an additional disturbance zone of 14,080 acres would exist. Dispersed activities (e.g., hiking, sightseeing, guided tours) would generally create intermittent impacts of a few hours or days to wildlife. Wilderness and WSA protective measures would generally provide short- and long-term benefits to wildlife and their habitats. Wildlife facilities on 3 acres and vegetation treatments on 3,100 acres annually (e.g., prescribed fires, woodland thinning) would create short-term, site-specific impacts, but would result in long-term improvement vegetative and habitat productivity.

Threatened, Endangered & Other Special-Status Species

Alternative B

As discussed under Alternative A, the BLM has completed informal consultation with the FWS under Section 7 of the ESA. As part of the informal consultation process, a Biological Assessment was

prepared for all Threatened and Endangered and other Special-Status Species (Refer to Appendix Q). The FWS concurred with the BLM determinations of "May Affect - Not Likely to Adversely Affect" and no formal consultation was initiated.

Vegetation

Under Alternative B, actions proposed to resolve the issues listed below would have the same impacts on accomplishing vegetative objectives as under Alternative A. Impacts of resolving the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses and Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Achieving the Potential Natural Communities (PNCs) would be the vegetative goal for the Planning Area. A common set of long-term objectives would be established to guide management and use of vegetation. In general, vegetative species diversity would be expected to improve.

Vegetation--Forest & Woodland Resources

Under Alternative B, actions proposed to resolve the issues listed below would have the same impacts on forest and woodland resources as those discussed above for Alternative A. Impacts of resolving the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional

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- Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Up to 100 acres of piñon-juniper could be thinned each year to meet vegetative objectives. The thinning would be conducted at lower elevations, where the site potential was open woodlands, savanna or shrub-grassland. During the 20-year life of the plan, a maximum of 2,000 acres could be improved.

Up to 5 fires ranging from 50 to 1,500 acres each in size could burn each year. These would improve the ponderosa pine forest community by reducing competition with piñon-juniper, and exposing soils to allow for ponderosa pine seedling establishment. Fire could also reduce piñon-juniper in the higher elevation woodlands. In the long term, it is expected that competition for light, water and nutrients in the piñon-juniper trees would be reduced, providing healthier, uneven-aged stands of woodlands.

Vegetation--Rangeland Resources

Under Alternative B, actions proposed to resolve the issues listed below would have the same impacts on rangeland resource as those described above for Alternative A. Impacts of resolving the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

The PNCs would be part of the vegetative objectives incorporated into AMPs/CRMPs. Rest from livestock grazing use would be increased, but management of warm-season grasses would continue to

be emphasized. Rangeland improvements would continue to be built to improve patterns of livestock grazing use. During the short term, improvements in vigor, productivity and reproduction would be expected for grass species. With improvement in productivity, grazing periods would be adjusted to increase the frequency and duration of rest. In the long term, cool-season grasses and desirable shrubs would increase. Based on improvements in vegetative vigor, reproduction and rest from livestock grazing, vegetation would be less susceptible to the negative effects of drought.

Social & Economic Conditions

Actions proposed to resolve the issues of recreation, vegetation (grazing), and American Indian uses and traditional cultural practices could potentially have social and/ or economic impacts. However, the differences proposed for resource use and development between alternatives would not create measurably different impacts. Therefore, the impacts for Alternative B would be the same as those described above for Alternative A.

Soil, Water & Air Resources

Under Alternative B, the actions proposed to resolve the issues listed below would have the same impacts on soil, water and air as those described above for Alternative A. Impacts from resolving the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Improvements in the Planning Area's watershed resources would result primarily from woodland

thinning, livestock grazing management practices and fire. As a result of the disturbance associated with piñon-juniper thinning, the soil surface could be exposed to increased wind and water erosion. Selecting treatment sites that were less susceptible to erosion would reduce these short-term impacts. After thinning, roads would be rehabilitated as needed to limit erosion. Within 2 to 3 years after thinning, increased amounts of vegetative understory (i.e., forbs, grasses and shrubs) would be expected, which would reduce the soil erosion potential to less than it was before thinning. In the long term, the layering of vegetation (i.e., forbs, grasses, shrubs and trees) would reduce the likelihood of soil loss through wind and water erosion.

Responses to fire management would be similar to those anticipated for woodland thinning. Short- and long-term improvement in vegetative cover would be expected, especially on those areas selected to burn for resource enhancement. Fire in the areas burned to reduce their fuel load could be hotter, which could lengthen the vegetative recovery period. Burn prescriptions (e.g., wind speed, temperature, humidity) would be followed to help reduce the risk of vegetative damage from fire heat.

Visual Resource Management

Under Alternative B, actions proposed to resolve the issues listed below would have negligible short-term or long-term impacts exceeding the VRM objectives assigned to public lands within the Planning Area. Impacts of resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

For consistency in managing visual resources in the Planning Area, management classes would be assigned to all public lands there. Visual resources on 233,890 acres or 94 percent of the Planning Area would benefit through the assignment of VRM Classes I and II. Management to meet the objectives for these two classes would prevent activities that

would create noticeable changes in the elements of form, line, color and texture found in the landscape.

The visual resources on the 14,110 acres of VRM Class III lands would be subject to a greater degree of change from facilities developed for recreational use. However, lands assigned this class usually do not rank as high scenically, so change would not cause highly contrasting impacts there.

Issue 2--Facility Development

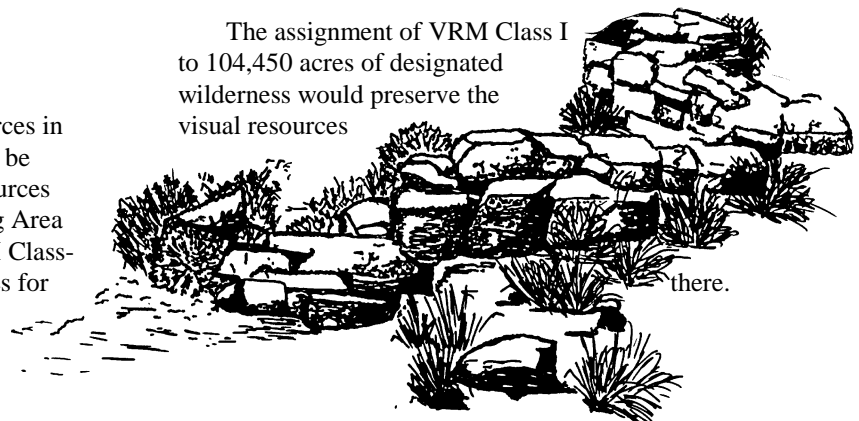
Under Alternative B, building a campground in the Spur Unit would disturb approximately 10 acres and cause short-term visual impacts from construction and the placement of structures in the landscape. Through the use of appropriate colors and materials along with the location of the campground, minimal impact on the scenic values of the area would be anticipated. Disturbance to another 33 acres under Alternative B would come from additional hiking trails, parking areas and trailheads. Added to the 17 acres currently disturbed by facilities and hiking trails, a total of 50 acres would be impacted by changes in the visual resources.

Issue 3--Access & Transportation

The reduction in motor vehicle travel routes (through the closure of 19 miles) and the restriction of motor vehicle use to designated routes would enhance visual resources. Confining vehicles to designated routes would reduce the potential for additional losses of vegetation, soil compaction and erosion from vehicle use, thus decreasing visual contrasts. Closed travel routes would be allowed to revegetate, which would also reduce visual contrasts.

Issue 4--Wilderness Management

The assignment of VRM Class I to 104,450 acres of designated wilderness would preserve the visual resources



there.

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The BLM would follow Class I objectives to prevent activities and structures that did not appear natural.

Issue 7--Cultural Resources

Building erosion-control structures at 25 cultural sites would create short-term visual impacts from construction disturbance and placement of the structures. However, materials that would harmonize with the surrounding landscape would be used. The resulting structures would have a low horizontal profile and would be placed in locations where disturbance was occurring from erosion. Therefore, no long-term adverse visual impacts would be anticipated. Over the long term, placing small erosion-control structures at these locations would likely enhance the visual quality of the local area as the adverse erosional contrasts were reduced and the areas were restored to resource production.

Issue 8--Wildlife Habitat

Undertaking up to 10 new habitat improvement projects would benefit visual resources over the long term. The construction of three water catchments over the life of the plan would disturb less than ¼ acre in total, which would be located away from areas of concentrated public use.

Issue 9--Vegetation

Woodland and forest treatments would create textural visual contrasts through thinning areas of *approximate* 100 acres in size.

Continued use of forage and range improvements for livestock management would remain evident in the landscape. No new improvements that would create surface disturbance would be proposed.

With *an estimated* five fires planned annually, short-term impacts on 50 to 1,500 acres per fire would be expected because the burned vegetation would be visible. Over the long term, these areas would rehabilitate, resulting in diversity and plant vigor that would enhance the area's visual resources.

Issue 10--Boundary & Land Ownership Adjustments

The acquisition of non-federal surface and subsurface estate would help preserve their scenic quality because these lands would be managed to minimize the visual contrasts that could occur (e.g., from development).

Summary

Localized visual impacts under Alternative B would come from recreational facility development and vegetative treatments. Activities that could alter the form, line, color and texture of the landscape would generally be allowed on 14,110 acres of public land classified as VRM Class III. Management activities on the 233,890 acres of Class I and II public land in the Planning Area would be restricted to conform to objectives of these classes. VRM Class I, which would allow no visual changes, would be assigned to approximately 45 percent or 104,450 acre, including designated wilderness. Acquisition of nonfederal inholdings, both surface and subsurface, would benefit the management of visual resources.

Cumulative Impacts

Under Alternative B, these would be the same as those identified under Alternative A above except, long-term vegetative disturbance would occur on 650 acres as a result of grazing improvements and recreation facilities development. Short-term vegetative disturbance would occur on 65 acres on a one time basis as a result pipeline installation and fence construction. Rehabilitation should be complete on these projects in two to three years. Fire is to be used as a vegetative improvement tool on approximately 4000 acres per year. This will have a short-term negative effect but after two to three years is expected to increase both the quality and quantity of vegetation on these acres. This acreage of improved vegetation would continue to grow as long as the treatment continues. The cumulative vegetative disturbance acreage would reach approximately 8650 acres (both short and long term). The increased quality and quantity acreage would reach several thousand acres because the improvements are expected to be effective for many years.

ALTERNATIVE C--NATURAL PROCESSES

Recreation & Facilities

Under Alternative C, actions proposed to resolve the issues listed below would have no impacts on recreation or facility development, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 1--Recreation

Under Alternative C, the BLM would maximize the opportunities for dispersed recreation while decreasing the opportunities for developed camping, hiking and picnicking. Most interpretation, which would be through printed media and personal contacts, would promote dispersed recreation and inform visitors of opportunities outside the Planning Area. Horseback riding opportunities would be the same as under the No Action Alternative. The quality of hunting opportunities would improve because of the greater levels of isolation.

Issue 2--Facility Development

With limited facilities developed, fewer visitors who depended on such facilities would use the Planning Area for recreational activities. Opportunities for camping, hiking, picnicking, back-country driving, exploring cultural or historical sites, and mountain biking would be fewer under this alternative.

Issue 3--Access & Transportation

Closing 133.1 miles of roads in the Planning Area would limit access for such recreational opportunities as driving for pleasure, back-country driving, hunting, hiking and mountain biking. However, more acreage would be in the semi-primitive, non-motorized ROS class, increasing the opportunities for recreationists interested in a more primitive and dispersed experience.

Issue 4--Wilderness Management

The net increase of 9,180 acres of wilderness would provide additional opportunities for dispersed and primitive recreation. Existing recreational facilities at locations such as The Narrows that provided access into wilderness would be removed, and recreationists would seek opportunities elsewhere.

Issue 5--Wilderness Suitability

The recommendation of the Chain of Craters WSA and contiguous Cebolla Wilderness acreage as suitable for wilderness would decrease the recreational opportunities for those visitors seeking mountain biking, back-country driving and other developed activities. Those visitors seeking primitive and dispersed recreational opportunities would find the additional acreage a benefit. Probably no net change in total visitor use numbers would occur; the change would be in the type of recreational opportunity available.

Issue 7--Cultural Resources

The use allocations for cultural resources made under Alternative C would decrease the number of recreational opportunities for visitors interested in sightseeing at historical and cultural sites. No sites would be available for developed recreation, nor would facilities providing access to cultural resources be developed.

Issue 9--Vegetation

Under Alternative C, the BLM would conduct a similar number of burns as under the No Action Alternative. Therefore the impacts to recreation and facilities would be the same.

Other vegetative manipulations would produce short-term impacts to recreation. During these actions, visitor use in affected areas would be restricted to protect health and safety. Immediately after the treatments, some scenic disturbance would be noticeable to visitors and users. In the long term, recreationists would see an increase in the diversity of the vegetation throughout the Planning Area and improvements in vegetative and wildlife habitat that would enhance the recreational experience.

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Issue 10--Boundary & Land Ownership Adjustments

If the Congress followed the BLM's recommendation for the NCA boundary changes proposed, the number of acres in the NCA would increase by 16 percent to 303,400 acres, and in wilderness by 9 percent to 110,980 acres. This acreage increase would improve the recreational potential of the Planning Area.

Access & Transportation

Under Alternative C, actions proposed to resolve the issues listed below would have negligible impacts on access and transportation. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Under Alternative C, with more emphasis on providing opportunities for semi-primitive and primitive recreation, the BLM's need to provide access for motorized vehicles would be reduced. Motorized vehicular use of the Planning Area would be on fewer miles of designated travel routes. The reduced route density would favor those recreationists who preferred nonmotorized activities.

However, concentrated use on fewer routes could lead to conflicts between users. The level of maintenance on many designated routes would be reduced, and the closure, removal or abandonment of routes and trails would make access to the public lands more difficult.

Trail access in the Planning Area would be limited to the five existing trails. Nonmotorized access would be available throughout the area, except on 128,440 acres of wilderness that would be closed to mechanical forms of transport such as mountain bikes.

Issue 2--Facility Development

The ease of accessing public lands would be impacted by removing facilities and providing fewer accommodations at sites. Existing trails would serve as access routes to public lands and features. Markers for the Narrows Rim Trail would be removed, although visitors could hike through this portion of the Planning Area without using the trail to guide them. Facilities to direct visitors to the Dittert Site would be removed.

Issue 3--Access & Transportation

Limiting vehicle use to designated routes and increasing the amount of land closed to motor vehicle access (128,440 acres) would diminish access opportunities. The opportunity to travel cross country by motor vehicle would be lost on 12,000 acres. Designated routes available for public use would be reduced from the existing 354.5 miles to 199.7 miles.

Issue 4--Wilderness Management

An additional 27,640 acres would be closed to access by motor vehicles and other forms of mechanical transport. This would be the result of the Congress expanding the Cebolla Wilderness and designating the Chain of Craters as wilderness.

Issue 5--Wilderness Suitability

If the Chain of Craters WSA was designated as wilderness, motorized and mechanical access opportunities would be lost to the general public on 18,300 acres and 46.5 miles of inventoried travel routes. The area would still be accessible for other forms of access such as hiking and horseback riding.

Of the lands contiguous to the Cebolla Wilderness, 9,340 acres would be recommended for wilderness and closed to motorized and mechanical access if the Congress designated them. The lands found unsuitable for wilderness designation under Alternative C would be managed as "limited," and motor vehicle access there would be restricted to designated travel routes.

Issue 9--Vegetation

Up to three fires ranging in size from 50 to 1,000 acres each would be expected each year. For public safety, access would be discouraged on these lands when a prescribed fire was being conducted. When planning to ignite a fire, the BLM would assess recreational use of the area to minimize travel disruptions.

Summary

The direct impacts of Alternative C on access opportunities would depend on the user's preferred or required method of travel. For those who preferred nonmotorized methods of travel, the entire Planning Area would be available. As the result of wilderness designation on 52 percent of the Planning Area, nonmotorized access opportunities would be enhanced because motorized vehicles and mechanical forms of transport would be prohibited. Access opportunities for people who preferred or were limited to motorized or mechanical means of transport would be provided on 199.7 miles of BLM designated travel routes over 48 percent of the public lands in the Planning Area. Minimal BLM-provided facilities and trails would be available to serve as access points to public lands and features within the Planning Area. Periodically, access to certain areas of public lands temporarily could be closed for a few days because of vegetative treatments such as fire, and for the practice of traditional American Indian activities.

Wilderness Management

Under Alternative C, it is assumed that the Congress would designate an additional 27,640 acres of public lands in the Planning Area as wilderness.

Actions proposed to resolve the issue listed below would have negligible impacts on wilderness. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management

Issue 1--Recreation

The 128,440 acres of public wilderness would benefit visitors who wished to experience this type of setting. Primitive and unconfined recreational use of

the areas would be consistent with wilderness preservation. Opportunities for solitude would be maintained and potentially enhanced.

Issue 2--Facility Development

The removal of facilities and reduction in the level of Planning Area development around the perimeter of the two wildernesses would benefit natural wilderness values by making access less convenient. Recreational use of these areas thus would be discouraged, reducing the potential for threats to naturalness from human imprints associated with such use.

Issue 3--Access & Transportation

Through agreements with the BLM, owners of non-federal surface and subsurface interests, and livestock permittees with range improvement facilities within the boundaries of the two wildernesses would be provided with reasonable access. These routes would be the least impacting to the wilderness setting. For access to range improvements, other routes would have to be authorized in the Chain of Craters and the expanded Cebolla Wilderness through the use of RIM Plans. Access for developing non-federal minerals would be dealt with on a case-by-case basis. No undue or unnecessary impacts would be anticipated from such development.

Issue 5--Wilderness Suitability

Under Alternative C, the 18,300 acres of public land contained in the Chain of Craters WSA and 9,340 acres contiguous to the Cebolla Wilderness would be preserved by Congressional designation as wilderness. The manageability and recreational use of the Cebolla Wilderness would benefit from the designation of the contiguous public lands.

Issue 6--American Indian Uses & Traditional Cultural Practices

Closure of lands for privacy when religious ceremonies were being conducted by American Indian groups would displace the primitive recreational use of that area for a few days at a time. Infrequent use of a motor vehicle (i.e., once every 2 to 3 years, for no more than 1 to 2 days) by American Indians whose mobility depended on such use for

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traditional cultural practices would be considered nonimpairing. Consultation between the BLM and American Indians would be needed before a formal closure and authorized use of a motorized vehicle or equipment.

Issue 7--Cultural Resources

Stabilized cultural and historical sites existing within wilderness boundaries would no longer be maintained. Consistent with Wilderness management policy, these sites would be allowed to deteriorate naturally unless an extraordinary scientific resource needed protection. No new stabilization projects or erosion-control measures would be allowed under Alternative C, which would benefit the areas' naturalness by eliminating potential surface-disturbing activities. The wilderness value of naturalness would also benefit from the denial of excavation and collection under this alternative.

Issue 8--Wildlife Habitat

Wildlife projects existing at the time of wilderness designation would be allowed to remain in place. Use of motor vehicles and motorized equipment to maintain these projects would be restricted, as the noise and sight of vehicles would have a negative impact on the wilderness experience of the visitor.

Issue 9--Vegetation

The development of AMPs and the management of livestock to improve forage conditions would benefit wilderness through enhancing the areas' natural character.

After completing a Fire Management Plan for the Planning Area, the BLM would allow wildland fires to burn as long as they did not spread outside the wilderness, or threaten human life or property.

Actions to suppress wildland fires could alter the natural landscape and disrupt the opportunities for solitude and primitive recreation, although the severity of impacts is not measurable. However, suppression actions in wilderness would be executed to minimize surface disturbance and disruption of resources and uses. In the long term, any short-term disruptions by fire could result in improved plant diversity and the return of natural ecological processes.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of non-federal surface (800 acres) and subsurface mineral interests within the boundary of the two wildernesses would enhance wilderness management and values. This enhancement would occur through eliminating both potential development that would be detrimental to the wilderness character, and the need to provide motorized access to these inholdings.

The BLM would also recommend that the Congress amend the boundary of the Cebolla Wilderness to exclude approximately 200 acres of land on the wilderness perimeter owned by Acoma Pueblo. Such an amendment would enhance wilderness management by excluding these non-federal lands from within the boundary.

Summary

Under Alternative C, the wilderness resource would benefit from the designation of 9,340 additional acres of wilderness, for a Planning Area total of 128,440 acres of public land. Visitors seeking primitive and unconfined recreational use would benefit because 52 percent of the Planning Area would be available. Wilderness designation would help maintain the existing natural character of these lands and provide opportunities for solitude through the application of closures and restrictions. The quality of the wilderness experience would be improved because of the visual, cultural and historical values within these areas. Acquisition of private surface and subsurface inholdings would benefit the manageability of these areas, eliminating the need to provide access and the potential for activities that would degrade the areas' naturalness.

Existing uses of the Cebolla, West Malpais and Chain of Craters Wildernesses for livestock grazing, traditional practices by American Indians, wildlife habitat, and primitive and unconfined recreational activities would continue to the extent allowable under the BLM Wilderness Management Policy and the Wilderness Act. Though state highways, county roads and some BLM travel routes adjacent to these

areas would remain open, the areas would not be as easily accessible under Alternative C, nor as convenient for use once accessed because of the limited trails, trailheads and facilities near these wildernesses. Interpretive services would be limited to offsite interpretive materials and facilities, primarily to educate the users about proper land ethics, not to direct use to these areas.

Wilderness Suitability

Under Alternative C, the BLM would recommend the entire 18,300 acres of public land within the Chain of Craters WSA as suitable for wilderness designation. Further, it is assumed that the Congress would accept this recommendation and designate the lands as wilderness.

Of the 10,380 acres of public land contiguous to the Cebolla Wilderness, the BLM would recommend 9,340 acres as an addition. It is assumed that the Congress would accept the recommendation and designate these lands as wilderness. It is also assumed that 1,040 acres of public land found unsuitable for designation would be released from interim management and managed under the current land use plan applying to them.

Under Alternative C, if the lands contiguous to the Cebolla Wilderness were not designated as wilderness, no direct impacts to wilderness values would be anticipated from actions implemented to resolve the other nine issues. The BLM would apply a more restrictive VRM class that would exclude visual resource alterations and preserve the existing landscape character.

The opportunity to use these designated areas for motorized recreation would be lost. Travel routes would be closed to the general public. The use of the forage and existing range improvements for livestock grazing would be allowed to continue, but the use of motorized vehicles and equipment by livestock operators would be restricted. This would likely cause an inconvenience to livestock operators. American Indian access into these lands by motorized vehicle for traditional cultural practices would be lost with designation.

American Indian Uses & Traditional Cultural Practices

Under Alternative C, actions proposed to resolve the issue listed below would have no impacts on American Indian uses and traditional cultural practices. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

As discussed under Alternative A above, dispersed recreation is expected to continue to increase over the life of the plan. However, the BLM under Alternative C would generally discourage recreational use, so it is assumed that dispersed recreational use would increase less under this alternative. Dispersed recreation would conflict with traditional American Indian uses if visitors intruded into these activities or took items left as offerings. The probability of such incidents under Alternative C would be the lowest of all four alternatives.

Issue 2--Facility Development

Minimized facility development under Alternative C would result in fewer intrusions into American Indian traditional uses of the Planning Area.

Issue 3--Access & Transportation

It is common for vehicles to be driven off established roads during piñon gathering and other traditional activities. Under Alternative C, no off-road vehicle use would be allowed. All access for traditional Indian uses would have to be non-motorized (i.e., foot, horseback).

Altogether 133.1 of the 362.8 miles of existing roads and trails would be closed and 30 miles would be available for authorized users under Alternative C, leaving 199.7 miles open for use by the general public. A large proportion of the closed roads would be in the Chain of Craters WSA, which would become wilderness under this alternative, but other areas would be affected as well. Portions of the Brazo, Breaks Non-NCA, and Cerro Brillante Units that are now accessible by vehicle would be at least 1½ miles from vehicle access. These changes would increase

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privacy but decrease the ease of access for traditional American Indian practices.

Issue 4--Wilderness Management

No special provisions would be made for American Indian use of the three wildernesses. Access by foot or horseback only could preclude activities needed for American Indian groups to continue certain traditions that maintained their close ties to El Malpais.

Issue 5--Wilderness Suitability

The BLM under Alternative C would recommend that 18,300 acres in the Chain of Craters WSA area be designated as wilderness. This would result in less vehicle-based recreation and more pedestrian use, but overall would probably not change the absolute number of visitors to this area.

Issue 7--Cultural Resources

Under the Natural Processes Alternative, the BLM would impose firm restrictions on issuing permits for research or mitigation that required physical alteration of prehistoric archeological sites. The agency also virtually would eliminate site-specific management practices. These provisions would minimize human intrusions, thereby having positive impacts on American Indian practices and uses from the standpoint of traditional Navajo and Pueblo values.

The BLM under Alternative C would also forbid the collection of surface artifacts by all people, including members of Acoma Pueblo. This traditional cultural activity could not occur within the Planning Area or elsewhere on public lands, resulting in a negative impact to traditional Acoma practices.

Issue 8--Wildlife Habitat

Reintroduction of native species and maintenance of existing wildlife habitat projects would be unlikely to affect American Indian uses. The possible effects of fire are discussed under Issue 9 below.

Issue 9--Vegetation

Prescribed and wildland fires would increase vegetative diversity, but their effects on specific plants used by American Indians in El Malpais is not known. Changes in grazing practices would be unlikely to affect American Indian uses.

Issue 10--Boundary & Land Ownership Adjustments

Proposed changes in the NCA boundary would not affect traditional American Indian uses. Acquisition of the treadway or an easement for the CDNST would increase recreational use in the Chain of Craters WSA, which is a sensitive area for the Ramah Navajos. Addition of 9,340 acres to the Cebolla Wilderness would restrict vehicle use, including for traditional practices.

Summary

Recreational use could potentially cause some serious conflicts with traditional cultural practices in the Planning Area because it would reduce privacy and increase the likelihood of intrusion. Under Alternative C, the BLM would provide less encouragement for recreational activities, thereby minimizing the adverse effects of recreational use. The Chain of Craters Back Country Byway would be decommissioned, and a treadway would be formalized along the CDNST only where needed to reduce resource damage.

Vehicle access would be minimized under Alternative C, decreasing ease of access for traditional activities but increasing privacy. A total of 9,180 acres would be recommended for addition to the Cebolla Wilderness, and the Chain of Craters WSA would be recommended for designation. No provision would be made for American Indian access into these wildernesses.

Many activities that could conflict with traditional cultural practices would be minimized under this alternative. Archeological research involving excavation would be prohibited, and active cultural resource management (which sometimes includes actions regarded as intrusive) would be minimal. Vegetative manipulation involving the use of chemicals is not proposed under Alternative C.

Prohibitions on collection of prehistoric pottery

for use as temper in contemporary pottery would constitute an adverse impact on traditional American Indian practices. Depending on availability of alternative sources, prohibitions on fuelwood gathering also would have an adverse impact on the ability of local Indians to obtain wood for heating, cooking and other uses.

Exclusion of certain Acoma Tribal lands from the NCA is recommended under Alternative C, which could have a positive effect by reducing the potential for intrusion there. Acquisition of lands and mineral interests and possible expansion of the NCA would help to exclude uses incompatible with traditional American Indian uses, therefore having positive impacts.

Cultural Resources

Under Alternative C, actions proposed to resolve the issues listed below would have no impacts on cultural resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 1--Recreation

The Natural Processes Alternative would benefit cultural resources because the BLM would discourage recreational use of the Planning Area. However, the dispersed use allowed could cause impacts to cultural resources that were more difficult to control and evaluate than if recreation use was concentrated in specific areas. In the absence of onsite interpretations, stewardship messages would likely be less effective than if they were presented at cultural sites.

Issue 2--Facility Development

Under Alternative C, the BLM proposes no campgrounds, hiking trails, picnic areas, or other facilities to accommodate recreational use. To the extent that absence of these facilities discouraged public use, impacts such as illegal surface collection and pedestrian trampling of archaeological properties would be reduced. At the same time,

facilities would provide a way to control visitor use and direct it toward areas where it would have minimal impact. This option would be foregone under the Natural Processes Alternative.

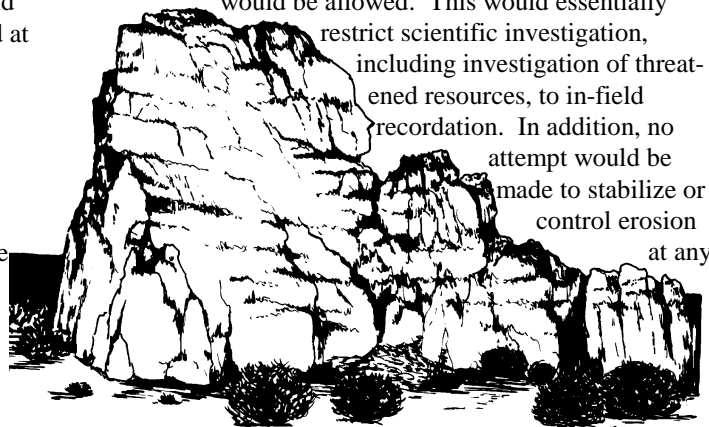
Issue 3--Access & Transportation

Under Alternative C, no off-road vehicle use would be allowed. This restriction would benefit cultural resources because such use could result in direct damage as vehicles ran over archeological sites, and could lead to erosion.

Altogether, 133.1 of the 362.8 miles of existing roads and trails would be closed under Alternative C and 30 would be open to authorized users only, leaving 199.7 miles open for public use. Many of the closed roads and trails would be in the Chain of Craters WSA and the Cerro Brillante Unit, which have low densities of cultural resources, so the closures would have no effect there. Other roads and trails to be closed are in the Spur, Breaks, and Breaks Non-NCA Units, which have high site densities, and in the Brazo and Cerritos de Jaspe Units, which have moderate densities of cultural resources. Limiting motor vehicle access in these areas would protect prehistoric and historical cultural resources by making it more difficult for scavengers and looters to bring in excavation gear, or to transport away materials such as building stone or weathered wood. At the same time, the closures would make patrolling by BLM staff more difficult.

Issue 4--Wilderness Management

Under Alternative C, no archeological research involving extractive activities or resulting in long-term or short-term impacts to wilderness values would be allowed. This would essentially restrict scientific investigation, including investigation of threatened resources, to in-field recordation. In addition, no attempt would be made to stabilize or control erosion at any



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specific site within the two wildernesses, regardless of resource value. However, continued patrol and surveillance, and measures that were not site-specific (such as improved grazing management) would benefit cultural resources.

Issue 5--Wilderness Suitability

If the Congress designated as wilderness the Chain of Craters WSA and lands adjacent to the Cebolla Wilderness, the cultural resource impacts described under Issue 4 above would also apply to these areas.

Issue 7--Cultural Resources

Under Alternative C, the BLM would seek to minimize human impacts, both beneficial and adverse. The natural processes of deterioration and erosion would generally be left unchecked. Historical homesteads would deteriorate rapidly. Many of these sites, as well as prehistoric masonry ruins that have been stabilized, could lose their interpretive value during the life of this plan. Scientific values would be lost rapidly at a handful of sites that are being destroyed by gully erosion. Many other sites would experience mild negative impacts as a result of sheet erosion, although these impacts might be partially offset by the results of improved grazing management.

However, reduced vehicle access and vigorous ARPA enforcement would result in positive impacts. Cultural resources would not be subject to scientific investigations that required physical alteration, and collection of prehistoric pottery by American Indians would not be permitted. Both of these measures would produce beneficial long-term impacts to the scientific value of cultural resources in the Planning Area.

Issue 9--Vegetation

Livestock grazing could adversely affect cultural resources by reducing vegetation, thereby contributing to erosion. Trampling could break artifacts on the ground surface, and livestock could rub against historical structures, contributing to their deterioration. Erosion affecting cultural resources would undoubtedly continue, but would be reduced by improved grazing management under the Natural Processes Alternative. Eight historical homesteads in

the Planning Area have been fenced to exclude livestock. Under Alternative C, no new fencing would be undertaken, and existing fencing would not be maintained, so homesteads could be damaged by livestock.

Fires, including wildland fires under prescription and prescribed fires, could destroy historical sites with flammable elements and damage the scientific potential of surface and near-surface archeological materials. Activities associated with fire suppression such as the establishment of fire camps and construction of fire lines could also result in adverse impacts to cultural resources. Under Alternative C, no historical sites would receive special protection from fire, although the BLM would seek to avoid inadvertently burning such structures during prescribed fires. Locations of proposed prescribed fires would not generally be inventoried to Class III standards if they were in areas of low site density (refer to Map 37). Class III inventory would be considered in zones of high site density, and a cultural resource advisor would be required during fire suppression activities, regardless of the source of ignition.

Issue 10--Boundary & Land Ownership Adjustments

Expansion of the NCA to include the Breaks Non-NCA Unit and the Tank Canyon-SFO Unit (which would require Congressional action) would add numerous significant Anasazi ruins to the NCA, providing them increased ARPA protection but decreased site-specific management attention. Pending legislation to modify the NCA boundaries, the BLM would manage the Breaks Non-NCA Unit under the provisions of this plan and the Tank Canyon-SFO Unit under the Socorro Resource Management Plan (where the unit is identified for sale or disposal). Site-specific management actions would be possible in the Tank Canyon-SFO Unit, which includes the Newton Site.

No easements or acquisitions specifically intended to protect cultural resources would be pursued. Closure of lands to mineral entry would help prevent inadvertent damage to cultural resources.

Changes in wilderness boundaries would bring an additional 9,180 acres into wilderness, with the

impacts discussed under Issue 4 above. Exclusion of 960 acres of Acoma Pueblo lands from the Planning Area would have no effect on cultural resources.

Summary

Few developments are planned under Alternative C, and NCA designation and the provisions of this plan would be effective in protecting cultural resources from damage as a result of deliberate, planned actions. With appropriate survey and mitigation, the minimal developments under Alternative C, including vegetative treatments and other similar proposals, should have no effect on cultural resources.

However, natural and human factors would continue to degrade cultural resources. Natural deterioration would affect historical homesteads, while gully and sheet erosion would impact archeological sites. Both archeological and historical sites would continue to be vulnerable to illegal collection, looting, and vandalism.

Illegal surface collection is primarily an unintended effect of recreational uses, which would be encouraged less under Alternative C than the other alternatives in this plan. At the same time, some mitigating measures such as interpretation would be less effective, and documentation of archeological sites would receive little emphasis.

Few proposals for recreational developments and designated areas of use are made under Alternative C, and most would be in non-sensitive areas. Vehicle use would be restricted to existing roads and trails, many of which would be closed. This would make access more difficult for vandals as well as BLM law enforcement and monitoring personnel.

Few cultural resource management activities intended to have a positive effect on specific sites would be included under Alternative C. The strategy for controlling erosion would emphasize actions that affected the Planning Area as a whole, such as improved grazing management. Most cultural resources would be subject to natural deterioration and could lose much of their interpretive potential during the 15- to 20-year life of this plan. Scientific values could be adversely affected as well. Scientific investigations involving physical alteration of cultural resource properties would be prohibited, minimizing current

scientific knowledge, but preserving long-term research potential.

Wildlife Habitat

Under Alternative C, actions proposed to resolve the issues listed below would have no impacts on wildlife habitat, or the magnitude of the impacts would be negligible. Impacts of resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

Issue 1--Recreation & Issue 2--Facility Development

Under Alternative C, the BLM would emphasize natural processes, and would discourage or limit some recreational opportunities (e.g., hiking, camping, picnicking, interpretive tours, horseback riding, mountain biking). Limiting recreational activities within the Planning Area would decrease the impacts to wildlife and their habitats.

Three recreation areas (Ranger Station, The Narrows, La Ventana Natural Arch) and four trails (CDNST, Narrows Rim, La Ventana Natural Arch, Hole-in-the-Wall) would continue to be used under this alternative. The impacts of use in these areas are analyzed under Alternative A. The existing recreational activities and facilities have resulted in a direct loss of wildlife habitat from development (19 acres), and a broader area of wildlife disturbance from human use of the area (3,880 acres--refer to Table 4-1).

The BLM would encourage dispersed recreation under Alternative C. No new facilities would be built except where site hardening or redirecting recreational activities to a more dispersed condition was needed. No camping would be allowed at The Narrows. Recreational visitors would still be allowed to drive on many of the roads, but no back country byways would be designated and activities would be encouraged outside the Planning Area.

Under Alternative C, wildlife and their habitats would benefit to the greatest extent of any alternatives. Fewer visitors (only those who knew

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about the area) and less vehicles would result in fewer impacts to habitats and fewer disturbances to wildlife species through human activities. It is estimated that wildlife would be disturbed on 320 acres per year from these dispersed activities.

Issue 3--Access & Transportation

Under Alternative C, wildlife would benefit from the closing of 133.1 miles (37 percent) of the roads in the Planning Area (refer to Table 2-11). The lands adjacent to the closed roads would not be subject to habitat degradation from vegetation loss and soil disturbance caused by vehicles and other human activities. In addition, these roads would eventually revegetate and provide additional habitat with reduced disturbance to wildlife populations within the area. However, near roads that were designated for use, wildlife habitat would continue to be subject to degradation from vehicles and other human activities.

Issue 4--Wilderness Management

Impacts to wildlife habitat under Alternative C would be the same as those identified for Alternative A. In addition, the management emphasis on natural processes would benefit wildlife species and their habitats to a greater extent than under Alternative A or B, in which the primary emphasis would be on the recreational qualities of wilderness.

Issue 5--Wilderness Suitability

If the Congress designated the Chain of Craters as wilderness, additional benefits to wildlife from protective and enhancement measures would occur. Approximately 47 miles of vehicular routes would be closed, which would eventually revegetate and provide additional habitat with reduced disturbance to wildlife populations within the area.

The designation of 9,340 acres of the 10,380 acres of lands contiguous to the Cebolla Wilderness would protect and enhance wildlife habitat because human activities in these areas would be limited. However, management of these areas as wilderness would preclude or modify certain wildlife habitat improvement projects there.

Issue 8--Wildlife Habitat

Under Alternative C, no new habitat enhancement projects would be planned, except where necessary to support a special-status species. An estimated six ½-acre projects would be developed for special-status species over the life of this plan. Wildland fires would be used to maintain habitats in the proper quality and quantity to support existing wildlife populations. It is anticipated that these fires would burn an average of 1,000 acres annually.

Issue 9--Vegetation

Under Alternative C, vegetative treatments would include livestock grazing management practices and wildland fires under prescription. With the emphasis on minimizing human management practices under this alternative, benefits to wildlife would be limited in the short term. *Grazing improvements including fences, wells, storage tanks, and dirt tanks create a long-term vegetative disturbance on 530 acres. Planned pipeline development and fence construction would create short-term disturbance on an additional 65 acres. This is expected to create negligible impact to wildlife.*

Riparian management would be implemented using only grazing management practices to achieve properly functioning condition, with no new exclosures being constructed. No planting of riparian species or removal of exotic species (e.g., saltcedar, Russian olive) would be undertaken under Alternative C. The objective of accomplishing properly functioning riparian areas would not be obtained in the short term and could possibly be jeopardized in the long term. Existing riparian habitats are not in a natural condition as the result of aggressive fire suppression, invasion of exotic species, and other human uses (e.g., grazing, homesteading).

Issue 10--Boundary & Land Ownership Adjustments

Only those lands needed to protect the integrity of the NCA and wilderness values would be acquired under Alternative C. As less lands would be acquired, the benefits to wildlife through improved manageability would not be as great as under other alternatives.

Summary

Under Alternative C, activities associated with recreation, interpretation, and facility development would result in long-term impacts to wildlife and their habitats on 19 acres. Near developed facilities or areas with high levels of human use, an additional disturbance of 4,200 acres would occur. Dispersed activities (e.g., hiking, sightseeing, guided tours) would generally create intermittent impacts to wildlife (lasting for a few hours or days). Wilderness and the WSA would provide the maximum benefits to wildlife and their habitats because of protective measures. Wildland fires totalling 1,000 acres annually would create short-term, site-specific negative impacts, but would result in a long-term improvement of habitat productivity.

Threatened, Endangered & Other Special-Status Species

Alternative C

As discussed under Alternative A, the BLM has completed informal consultation with the FWS and under Section 7 of the Endangered Species Act. As part of the informal consultation process, a Biological Assessment was prepared for all Threatened and Endangered and other Special-Status Species (Refer to Appendix Q). The FWS concurred with the BLM determination of “May Affect - Not Likely to Adversely Affect” and no formal consultation was initiated.

Vegetation

Under Alternative C, actions proposed to resolve the issues listed below would have the same impacts on accomplishing vegetative objectives as those described above for Alternative A. Impacts of resolving the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat

- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

The BLM would establish a common set of long-term objectives to guide management and use of vegetation in the Planning Area. Under Alternative C, livestock grazing and fire would receive management emphasis.

During the short term, livestock grazing management would provide for improved vigor, health, and productivity of herbaceous species. In the long term, livestock grazing management would allow for progress in accomplishing vegetative objectives.

Prescribed and wildland fires would be used for fuel load management, to prevent catastrophic fire and protect property. Three fires ranging in size from 50 to 1,000 acres each would be expected. These fires would occur under specified conditions (prescriptions) to reduce ground fuel and prevent fires from moving to the treetops. Resource enhancement (including restoration of ponderosa pine communities) would be a secondary benefit.

Vegetation--Forest & Woodland Resources

Under Alternative C, actions proposed to resolve the issues listed below would have the same impacts on forests and woodlands as those described above for Alternative A. Impacts of the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

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Issue 9--Vegetation

No thinnings would be conducted. As a result, piñon-juniper would be expected to increase in open woodlands, savannas and/or shrub-grasslands. Up to three fires ranging in size from 50 to 1,000 acres each would be expected. The fires would improve the ponderosa pine forest community and open piñon-juniper woodlands.

Vegetation--Rangeland Resources

Under Alternative C, actions proposed to resolve the issues listed below would have the same impacts on rangeland resources as those described above for Alternative A. Impacts of resolving the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Achieving the Potential Natural Communities would be part of the objectives established in AMPs. Rest from livestock grazing use would be increased. Because of the requirement for yearlong rest, livestock grazing use would have to be reduced. The size of the reduction would be based on vegetative monitoring studies and would be sufficient to ensure proper utilization. No new rangeland improvements would be permitted to assist in providing for increased rest from livestock grazing use.

During the short term, improvements in vigor, productivity and reproduction for grass species would be slower for those areas where reductions in livestock grazing use were needed. Once proper grazing use was attained, anticipated improvements in vegetation would begin. As productivity improved, increases in livestock grazing use would be permitted. The increases would be based on monitoring studies

and would not exceed current grazing preference.

In the long term, cool-season grasses and desirable shrubs would increase. Based on improvements in vegetative vigor, reproduction and rest from livestock grazing, vegetation would be less susceptible to the negative effects of drought.

Social & Economic Conditions

Actions proposed to resolve the issues of recreation, vegetation (grazing), and American Indian uses and traditional cultural practices could potentially have social and/ or economic impacts. However, the differences proposed for resource use and development between alternatives would not create measurably different impacts. Therefore, the impacts for Alternative C would be the same as those described above for Alternative A.

Soil, Water & Air Resources

Under Alternative C, actions proposed to resolve the issues listed below would have the same impacts on soil, water and air as those described above for Alternative A. Impacts from resolving the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Improvements in watershed would occur primarily as the result of livestock grazing management and fire. Vegetative ground cover would be expected to increase, reducing the likelihood of soil loss through wind and water erosion. Within 2 to 3 years after burning, increases in vegetative understory (i.e., forbs, grasses and shrubs) would be expected, which would reduce erosion potential to less than existed before the fire. Areas burned to reduce fuel load could burn hotter, which would lengthen the

vegetative recovery period. Burn prescriptions (e.g., wind speed, temperature, humidity) would be used to help reduce the risk of vegetative damage from fire heat. In the long term, the layering of vegetation (i.e., forbs, grasses, shrubs and trees) would improve, reducing the likelihood of soil loss through wind and water erosion.

Visual Resource Management

Under Alternative C, actions proposed to resolve the issues listed below would have negligible short- or long-term impacts that would exceed the VRM objectives assigned to public lands within the Planning Area. Impacts from resolving the remaining issues are discussed in the paragraphs following the list. Issue

1--Recreation

- Issue 2--Facility Development
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 3--Access & Transportation

Confining vehicles to designated travel routes would enhance the Planning Area's visual resources by reducing the potential for additional losses of vegetation, soil compaction and erosion from vehicle use, thus limiting visual contrasts. Closed roads would be allowed to revegetate, which would reduce the visual contrasts created by landform and vegetation alterations from the travel routes.

Issue 4--Wilderness Management

The assignment of VRM Class I to 128,440 acres of designated wilderness would preserve the visual resources there. Activities that did not appear to be natural would be prevented.

Issue 7--Cultural Resources

Construction of erosion-control structures and stabilization of cultural sites would only be undertaken if values were threatened and local American Indian groups concurred. Projects undertaken would create only short-term adverse impacts to visual resources from construction disturbance and placement of

structures in the landscape. However, no long-term impact would be evident because native material would be used to build the control structures, they would be low-lying horizontal structures, and would be placed where disturbance was already occurring from erosion. Such structures and stabilization would likely enhance the visual quality of the local area as erosion was abated and the area restored to resource production.

Issue 9--Vegetation

The continued use of forage and range improvements for livestock management would remain evident in the landscapes, so the existing visual contrasts would remain. With up to 3 fires annually, each of which would burn between 50 and **1,000** acres, short-term impacts would occur as the result of visible contrasts between the blackened, burned areas and the surrounding unburned areas. Over the long term, burned areas would rehabilitate, creating vegetative diversity and plant vigor that would enhance the visual resources in the Planning Area.

Issue 10--Boundary & Land Ownership Adjustments

The acquisition of non-federal surface and subsurface estate would help preserve scenic quality by managing these lands to protect their visual quality and minimizing the degree of contrast that could occur. These lands are currently not protected from developments that could be perceived as degrading to visual resources.

Summary

Visual resources would be maintained or enhanced through the assignment of VRM Classes I and II, the two most restrictive management classes, to almost the entire Planning Area. VRM Class III, a less restrictive management class, would be assigned to only 60 acres of public land. With few surface-disturbing facilities proposed under Alternative C, localized adverse impacts to visual resources would be negligible. The closing of 133.1 miles of travel routes and allowing them to revegetate would benefit visual resources by reducing the visual contrasts created by the routes. The designation of a greater amount of public land as wilderness would also

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benefit visual resources because the natural appearance on these 128,440 acres would be protected.

Cumulative Impacts

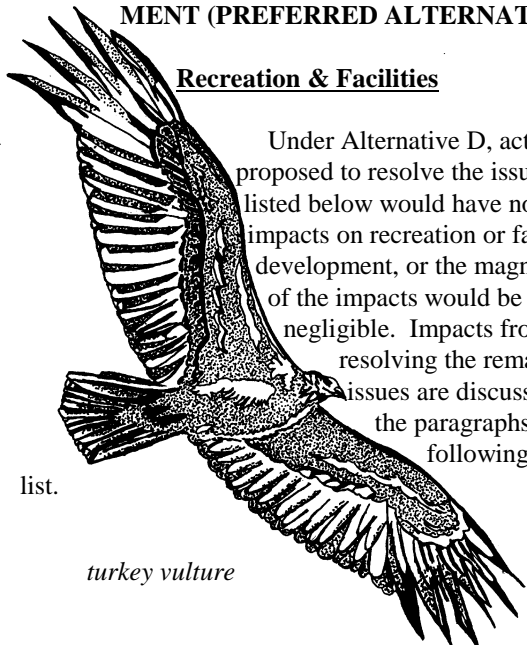
Under Alternative C, the cumulative impacts of actions proposed to resolve the issues would be the same as those identified under Alternative A above *except that long-term vegetative disturbance would occur on 552 acres as a result of grazing improvements and recreation facilities development. Short-term vegetative disturbance would occur on 65 acres on a one time basis as a result pipeline installation and fence construction. Rehabilitation should be complete on these projects in two or three years. Fire is to be used as a vegetative improvement tool on approximately 1000 acres per year. This will have a short-term negative effect but after two to three years is expected to increase both the quality and quantity of vegetation of these acres. This acreage of improved vegetation would continue to grow as long as the treatment continues. The cumulative vegetative disturbance acreage would reach approximately 2552 acres (both short and long term). The increased quality and quantity acreage would reach several thousand acres because the improvements are expected to be effective for many years.*

ALTERNATIVE D--BALANCED MANAGEMENT (PREFERRED ALTERNATIVE)

Recreation & Facilities

Under Alternative D, actions proposed to resolve the issues listed below would have no impacts on recreation or facility development, or the magnitude of the impacts would be negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

turkey vulture



- Issue 4--Wilderness Management
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 1--Recreation

In general, opportunities would be more developed and better defined for those who enjoyed concentrated recreation. Developed camping and picnicking opportunities would increase, and hiking opportunities would be more defined, as the number of identified trails would increase from 5 to 15. Opportunities for horseback riding would be the same as under Alternative B. The quality of hunting would likely improve as more roads would be closed than under Alternative A. Mountain biking opportunities and users would increase, but not to the level that would be expected under Alternative B. The number of back country byway users would likely increase as these areas were improved and marketed. Visitors interested in cultural or historical properties would find up to 10 different opportunities for exploration. However, opportunities to drive for pleasure would decrease because the ROS would be managed for a decrease of 15 percent in semi-primitive motorized acreage.

Issue 2--Facility Development

A total of 44 acres (less than 1 percent of the Planning Area) would be disturbed directly by recreational developments. Developed facilities for camping and horseback riding would likely draw more users. Approximately 57 miles of developed hiking trail would increase opportunities for recreationists. Trailhead facilities would offer similar opportunities as those indicated under Alternative B, with a more primitive style and fewer sites developed. Under Alternative D, opportunities for mountain biking would not be promoted through developed facilities; rather, facilities would be built if the Limits of Acceptable Change were exceeded because of increased mountain bike use.

Opportunities for picnicking at developed areas would increase by 50 percent. Recreationists would find driving into the back country for pleasure also increasing by 100 percent, with the designation of an additional back country byway. Areas for watching wildlife would be identified, and entry identification signs would clarify the variety of recreation

opportunities available in the Planning Area. In general, the opportunities for interpretation would increase under Alternative D because of the greater number of facilities and information sources developed than under Alternative A or C (brochures, signs, kiosks, cultural sites, the amphitheater near the Spur campground).

Issue 3--Access & Transportation

Visitors would have access to the Planning Area on 273.1 miles of road designated as open. This would decrease opportunities for recreationists who were interested in driving for pleasure or back-country driving. Cross-country access by nonmotorized means would remain as is and provide opportunities for hiking, mountain biking, horseback riding or other recreational activities.

Issue 5--Wilderness Suitability

If the Congress accepted the BLM's recommendation not to designate as wilderness the Chain of Craters WSA, these lands would be open for recreational developments, and opportunities would increase for interested visitors. Driving for pleasure, hiking and mountain biking would not be limited by a wilderness designation. Under Alternative D, the BLM would also recommend a net 3,930 acres as additions to the Cebolla Wilderness, increasing the Planning Area's wilderness to 105,570 acres total (including non-BLM land).

Issue 7--Cultural Resources

Under Alternative D, the BLM would allocate up to 10 sites for public use, providing an increase in sightseeing opportunities for those visitors interested in cultural or historical properties. Scientific investigations would further enhance these opportunities. Some recreationists would be attracted to sites with antiquities signs, but others would dislike this visual intrusion.

Issue 9--Vegetation

Just as under the No Action Alternative, prescribed fires would decrease recreation opportunities during the short term (the burn period and rehabilitation). However, the impact under Alternative D

would be greater because the acreage proposed to burn would be larger.

Other vegetative manipulations would produce short-term impacts to recreation. During the course of the action, visitor use to the area would be restricted to protect health and safety. Immediately after the treatment some scenic disturbance would be noticed by visitors and users. In the long term, recreationists would see an increase in the diversity of the vegetation throughout the Planning Area, improved vegetative and wildlife habitat health.

Issue 10--Boundary & Land Ownership Adjustments

If the Congress followed the BLM's recommendation for the proposed boundary changes, the NCA's acreage would increase by 16 percent to 303,400 acres, and the wilderness acreage would increase by 4 percent to 105,570 total acres. This added land would improve the Planning Area's recreation potential.

Access & Transportation

Under Alternative D, actions proposed to resolve the issues listed below would have negligible impacts on access and transportation. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 1--Recreation

Motorized access opportunities would be available on 143,270 acres through the use of 273.1 miles of designated travel routes. For those who preferred areas away from motorized vehicle use, 104,730 acres would be available. Trails designated for mountain bike use would enhance this experience and reduce the conflicts among users.

Issue 2--Facility Development

Recreational use would be enhanced through the construction of facilities such as additional trails, the

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campground and amphitheater in the Spur Unit. Facilities to accommodate equestrian at The Narrows, Armijo Canyon, Hole-in-the-Wall and Cerro Brillante would benefit those accessing the Planning Area by this means. The increased use of interpretive and educational material, such as signs, kiosks and brochures would help to inform the public of motorized and nonmotorized access opportunities.

Issue 3--Access & Transportation

Motorized access opportunities would be diminished because the BLM would increase the amount of public land closed to such use by the general public (104,730 acres). On the remainder of the public land in the Planning Area, vehicle travel would be limited to designated routes, resulting in the loss of the opportunity to drive cross country on 12,000 acres that had been previously open or undesignated.

Issue 4--Wilderness Management

An 3,930 additional acres would be closed to motorized vehicle use through the expansion of the Cebolla Wilderness by the Congress.

Issue 5--Wilderness Suitability

If the Congress released the Chain of Craters WSA from further wilderness review, motorized access opportunities would continue but would be diminished through limiting use to designated routes. A total of 13.9 miles of routes would be closed, approximately 30 percent of those inventoried within the WSA.

Of the lands contiguous to the Cebolla Wilderness, 3,930 acres would be recommended for designation and would eventually be closed to motorized and mechanical access, if the Congress designated them. On the contiguous lands found not to be suitable for wilderness designation under Alternative D, motor vehicle access would be limited to designated routes.

Issue 7--Cultural Resources

Developed parking and trails to additional sites would enhance access opportunities for those who wished to visit them.

Issue 9--Vegetation

Periodically for visitor safety, access to public lands in the Planning Area would be prohibited for short periods of time when prescribed fires were ignited. Under Alternative D, up to five prescribed fires ranging in size from 50 to 1,500 acres each would be planned annually.

Summary

The direct impacts of actions proposed under Alternative D on access opportunities would depend on the user's preferred or required method of travel. For those who preferred nonmotorized travel, the entire Planning Area would be available. As the result of wilderness designation on 42 percent of the Planning Area, such opportunities would be enhanced. Access opportunities for people who preferred or were limited to motorized or mechanical means of transport would be provided on 58 percent of the public lands in the Planning Area, as long as the vehicles remained on 273.1 miles of designated travel routes.

An increase in BLM-provided horseback facilities and trails (for hiking and mountain biking) would enhance the opportunity to access public lands and features within the Planning Area. However, periodically certain areas of public land could be temporarily closed because of vegetative treatments and the practice of traditional American Indian activities.

Wilderness Management

Under Alternative D it is assumed that an additional 3,930 acres of public land in the Planning Area would be designated by the Congress as wilderness.

Actions proposed to resolve the issue listed below would have negligible impacts on wilderness. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 4--Wilderness Management

Issue 1--Recreation

Primitive and unconfined recreation use of the wildernesses would be allowed to continue until the

level of use threatened wilderness character. The 104,730 acres in wilderness would benefit visitors who wished to experience this type of setting.

Issue 2--Facility Development

Additional trailhead facilities located adjacent to the two wildernesses would encourage use by providing a convenient place for visitors to begin their wilderness trip. These facilities would also improve the ability of users to be dispersed throughout the wilderness, which would decrease the potential for encountering other users and help enhance the opportunities for solitude.

Issue 3--Access & Transportation

Approximately 6 miles in the Cebolla Wilderness and 18 miles of access routes in the West Malpais Wilderness have been identified for authorized use by owners of private inholdings and livestock permittees maintaining existing range improvements. The continued evidence of human activity (travel routes and the sights and sounds associated with vehicle use) would diminish the wilderness setting in the adjacent areas.

Issue 5--Wilderness Suitability

Manageability of the Cebolla Wilderness would benefit through modifying the boundary to include an additional 3,930 acres of contiguous public lands. The quality of primitive and unconfined recreation in this wilderness would also benefit, because the additional acreage includes rugged wooded terrain.

Issue 6--American Indian Uses & Traditional Cultural Practices

Closing areas for privacy when traditional American Indian activities were taking place would displace primitive recreational use during the closure period. Infrequent motor vehicle use, i.e., once every 2 to 3 years, for no more than 1 or 2 days by American Indians whose mobility depended on such use for traditional cultural practices would be considered non-impairing to wilderness values. Consultation between the BLM and American Indians would be needed before formal closure and authorized motor vehicle use.

Issue 7--Cultural Resources

Cultural and historical sites stabilized within the boundaries of the wildernesses when designated would continue to be maintained and available for public use. Localized impacts from the survey, collection, excavation, and monitoring of cultural sites would not exceed the levels permitted under the BLM Wilderness Management Policy. Generally cultural resources would be left to the forces of nature. However, if additional stabilization or erosion control measures were needed because an extraordinary resource could be lost, the additional work would be accomplished using the "minimum tool."

Issue 8--Wildlife Habitat

Wildlife projects existing in wilderness at the time of designation would be allowed to remain in place. Use of motor vehicles and motorized equipment to maintain these projects would be restricted. However, the noise and sight of vehicles in wilderness would have a negative impact on the wilderness experience of the user.

Building facilities to enhance an area's value for wildlife would not be consistent with the free operation of natural processes under wilderness management. However, it may be needed for the continued existence or welfare of wildlife living in the wilderness. With consideration of their design, placement, duration, and use, certain permanent installations to maintain conditions for wildlife would be permitted. The resulting change would have to be compatible with wilderness preservation and the installation would be the minimum needed to accomplish the task.

Issue 9--Vegetation

The development of AMPs/CRMPs and the management of livestock to improve forage conditions would benefit wilderness through enhancing the areas' natural character.

Wildland fire suppression in wilderness could alter the natural landscape and disrupt the opportunities for solitude and primitive recreation. The severity

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of impacts is not measurable, but suppression actions would be carried out to minimize surface disturbance and disruption of wilderness resources and uses. In the long term, any short-term disruptions by fire could result in improved plant diversity and the return of natural ecological processes.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of non-federal surface (800 acres) and subsurface mineral interests within wilderness boundaries would enhance management and values through eliminating development and motorized access to these inholdings that could be detrimental to wilderness character. Amending the boundary of the Cebolla Wilderness to exclude approximately 200 acres owned by Acoma Pueblo would also enhance wilderness management.

Summary

Under Alternative D, the wilderness resource would benefit on 104,730 acres of public lands designated by the Congress. The opportunities for primitive and unconfined recreation use would be found on 42 percent of the Planning Area. The existence of BLM facilities, state highways, county roads and BLM travel routes adjacent to these areas would continue to provide convenient user access. Wilderness designation would help maintain the existing natural character of these lands and provide opportunities for solitude through the application of closures and restrictions. The quality of the wilderness experience would improve from the supplemental visual, cultural and historical values within these areas. Acquisition of private surface and subsurface inholdings would benefit the wilderness manageability of these areas by eliminating both the need to provide access and the potential for activities that could degrade the areas' naturalness.

Wilderness Suitability

Under Alternative D, it is assumed that the Congress would accept the BLM's recommendation and release the entire 18,300 acres within the Chain of Craters WSA from further wilderness review. It is also assumed that the Congress would designate 3,930 acres of public land contiguous to the Cebolla Wilderness. Those 6,450 acres of public land found to be unsuitable would be released from interim

management (by the BLM State Director, 30 days after approval of this El Malpais Plan).

Actions proposed to resolve the issues listed below would have negligible impacts on wilderness suitability. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 4--Wilderness Management
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 2--Facility Development

Facilities would be developed to provide amenities for users and points from which they could change from one mode of travel to another. These facilities adjacent to wilderness would encourage increased use there, which could decrease opportunities for solitude and unconfined recreation.

Issue 3--Access & Transportation

Over the long term, the sights, sounds and designated route imprints in the two areas recommended as suitable would diminish the opportunities for a wilderness experience.

Issue 5--Wilderness Suitability

On those 6,450 acres of public land released from further wilderness study, the values of solitude, naturalness, and primitive and unconfined recreation opportunities could be impaired or lost. The degree of impact would depend on the amount and type of impairing activities taking place.

Issue 6--American Indian Uses & Traditional Cultural Practices

On the east side of the Planning Area, infrequent use of a motor vehicle (i.e., once every 2 to 3 years, for no more than 1 to 2 days) by American Indians whose mobility depended on such use for traditional cultural practices would be considered non-impairing. However, such use is likely to occur more often on the west side in the Chain of Craters. Continued and frequent access into this area by motor vehicles for

traditional cultural practices would diminish its natural appearance and decrease the opportunities for solitude.

Issue 9--Vegetation

The installation of new range improvements for livestock management would adversely impact wilderness values if frequent motorized access was required. If done by mechanical means, treatments and periodic maintenance to ensure the achievement of vegetative goals would also impact wilderness values, especially naturalness.

Summary

Until the Congress acted on the BLM's suitability recommendations, activities within the Chain of Craters WSA and lands contiguous to the Cebolla Wilderness would be constrained by the BLM's Interim Management Policy to protect existing naturalness, opportunities for primitive and unconfined recreation, and solitude.

The existing dispersed types of recreation would have no impact on the suitability of the areas. Motor vehicle use by recreationists and other users would be limited to designated vehicle routes, except as needed to pull off the road when parking. No permanent recreation facilities would be built, so the opportunity for recreational uses of the area that were not dependent on facilities would be maintained.

Use of the area by American Indians for traditional cultural practices would have no impact on wilderness suitability as long as the vehicles remained on designated travel routes. No conflicts would be anticipated from the management of cultural resources, because little evidence exists of such resources within these areas. The assignment of VRM Class II objectives would maintain the existing landscape character and prevent visually dominant changes in the landscape elements. The potential for impairing disturbances from mineral exploration and development does not exist.

American Indian Uses & Traditional Cultural Practices

Under Alternative D, actions proposed to resolve the issues listed below would have no impacts on American Indian uses and traditional cultural practices. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 8--Wildlife Habitat

Issue 1--Recreation

Under Alternative D, the BLM would emphasize dispersed recreation, which is assumed to increase throughout the 15- to 20-year life of this plan. Dispersed recreation could conflict with traditional American Indian uses if visitors intruded into these activities or took items left as offerings. Under Alternative D the probability of such incidents would continue to increase.

The Ramah Navajos have identified Chain of Craters, including portions of the CDNST, as sensitive. Otherwise no specific conflicts with the locations emphasized under Alternative D are known. However, lava tubes, mountain peaks, archeological sites, and springs are sometimes important in American Indian traditional beliefs and practices.

Issue 2--Facility Development

A campground with parking, toilets, drinking water, an amphitheater, and hiking trail would be established in the Spur Unit. No conflicts are known with traditional American Indian uses in this area.

Five major trailheads would be established at Cerro Brillante, Cerro Americano, The Narrows, West Malpais, and Armijo Canyon (to the Dittert Site, Armijo Canyon Homestead and Springhouse). Other trailheads would be established at locations such as La Rendija, Cerro Rendija, and Chain of Craters only if recreational use in the five primary locations began to result in environmental damage. These facilities

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would focus recreational use, resulting in increased visitation in their vicinity. Although no specific conflicts with American Indian uses are known, archeological sites, mountain peaks, and springs are often important.

The BLM is establishing a treadway within the CDNST corridor and identifying potential water sources for hikers. If increasing mountain bike use began to result in resource damage, up to 100 miles of formal biking trails would be established in the Chain of Craters, Cerritos de Jaspe, or Brazo Units. The Chain of Craters area in general has been identified as sensitive by the Ramah Navajos. Increased recreation there could disrupt traditional use.

Interpretation at the Dittert Site would include an exhibit panel in the kiosk at the Armijo Canyon trailhead and a self-guided trail with markers keyed to a trail brochure. Lower-level interpretive facilities would include primitive trailheads at the Lobo Canyon Petroglyphs, Ranger Station Reservoir, an historical homestead, West Malpais Schoolhouse, and other cultural resource sites to be identified. Registration boxes would be set up at these sites only if warranted by levels of visitation. No specific conflicts between these proposals and American Indian use have been identified. However, archeological sites are often sensitive and American Indian consultations would be needed as part of the site-specific EAs for these projects.

The NM 117-CR 42-NM 53 loop and a route in the Brazo Unit would be designated as back country byways and marked with signs. This could encourage more recreational use in the Chain of Craters area, which has been identified as sensitive by the Ramah Navajos.

Issue 3--Access & Transportation

It is common for vehicles to be driven off established roads during piñon gathering and other traditional activities. Under Alternative D, no off-road vehicle use would be allowed. Vehicle use would be allowed on designated roads and trails on 143,000 non-wilderness acres of the Planning Area, including the Chain of Craters WSA. Approximately 83 miles of roads would be closed and 273 would remain open.

Under this alternative, portions of the Brazo, Chain of Craters, and Cerro Brillante Units that are now accessible by vehicle would be 1 to 2 miles from vehicle access. These changes would increase privacy but decrease ease of access for traditional American Indian practices.

Issue 4--Wilderness Management

The impacts under Alternative D would be the same as those under Alternative B. American Indians would be allowed to access specific places within the Cebolla and West Malpais Wildernesses by vehicle under certain circumstances. It would have to be shown that, because of the physical condition of mandatory participants or other factors, vehicle use was the "minimum tool" required for access. Other factors such as the frequency and duration of visits would have to be taken into account to ensure that vehicular use would not degrade the areas' overall wilderness qualities.

Issue 5--Wilderness Suitability

Release of the Chain of Craters from WSA status would facilitate access and use of the area by American Indians by allowing continued vehicle use along designated roads and trails. Addition of 3,930 acres to the Cebolla Wilderness would limit vehicle use there, and increase the amount of walking needed for activities such as gathering piñon nuts.

Issue 7--Cultural Resources

For collecting and/or excavating prehistoric archeological sites, Alternative D would be more restrictive than Alternatives A and B, but less restrictive than Alternative C. It would be unlikely but possible that ARPA permits for these activities would be issued during the life of the plan. The Pueblo of Acoma recognizes all prehistoric sites in the Planning Area as ancestral places and, in traditional belief, considers any excavation or collection to be an adverse effect. The BLM is required to consult with American Indians before undertaking such a project, but is not absolutely bound to conform to their wishes. If permits were issued for these activities, adverse impacts to American Indians would result.

Many Pueblo people also regard active management of prehistoric archeological sites as intrusive. Under Alternative D, the BLM would undertake 1,192 acres of cultural resources inventory, post 100 antiquities signs, maintain stabilization projects at three prehistoric sites, and could consider additional prehistoric ruin stabilization or erosion control. In traditional belief, some or all of these actions could constitute an adverse effect.

Under Alternative D, members of Acoma Pueblo could collect prehistoric pottery freely in specially designated portions of the Planning Area. This requirement would restrict this traditional cultural practice and therefore would constitute an adverse impact. Under this alternative the BLM would also collect reference samples of pottery from sites in the areas made available for Acoma use. This measure also would likely be offensive to some traditional Pueblo people.

Issue 9--Vegetation

Springs are sometimes important places in traditional American Indian belief, so special attention would be given to American Indian consultations when springs were fenced to improve riparian areas. Prescribed and wildland fires would increase vegetative diversity, but the effect of this activity on specific plants used by American Indians in El Malpais is not known. Chemical treatments would be of concern to American Indians gathering wild plants, and would be closely coordinated with groups using the area for this purpose.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of the treadway or an easement for the CDNST would increase recreational use in the Chain of Craters area, which is sensitive for the Ramah Navajos.

Summary

Increasing recreational use would have the most serious and pervasive impacts upon traditional cultural practices in the Planning Area. Such use would create long-term negative impacts by reducing privacy for traditional activities and increasing the likelihood of non-Indian intrusions. Dispersed recreational use would increase under this alternative,

encouraged by recreational developments and aspects of the interpretive program. Several proposals would accommodate increased use in the Chain of Craters WSA, which has been identified as sensitive for the Ramah Navajos.

Motor vehicle access would be limited to existing roads and trails. Under this alternative, the BLM would leave more roads open than under Alternative C, but less than under Alternative A or B. Decreased vehicle access would make traditional practices such as piñon nut gathering more difficult, but would enhance privacy for other practices. Provisions would be included under this alternative to allow infrequent vehicle access into wilderness under certain circumstances.

Some of the activities and decisions proposed under Alternative D could have other negative impacts. The BLM would not strictly prohibit archeological research involving excavation, although strongly discouraging it. Some other activities under this alternative such as signing, ruin stabilization, and erosion control intended to protect ruins may be considered intrusive by traditional American Indian people. Collection of prehistoric pottery for use as temper would be allowed, but only through a formal permit process. Chemical treatment as a means of vegetative manipulation could adversely impact people who were gathering herbs and other plant products. Thinning of piñon-juniper stands would be allowed under this alternative, so fuelwood could be available in some years. However, there would be no assurance that sufficient quantities would be made available to meet demand. Depending upon the availability of alternate sources, prohibitions on fuelwood gathering outside the thinned areas may also be an adverse effect.

Certain Acoma Tribal lands are recommended for exclusion from the Planning Area under this alternative. If the Congress passed legislation, additional lands would be added to the NCA and the impacts, positive and negative, outlined here would apply there also. Some ongoing uses such as fuelwood and piñon nut gathering would become more restricted, but incompatible uses such as commercial fuelwood sales and mineral extraction would be prohibited, which would have a positive impact on American Indian uses and traditional practices. Acquisition of land and mineral interests included under this alternative would also help exclude

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incompatible uses.

Cultural Resources

Under Alternative D, actions proposed to resolve the issue listed below would have no impacts on cultural resources. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

Under this alternative, the BLM would generally encourage dispersed recreational activities that might affect cultural resources, including camping, hiking, hunting and picnicking. Proposals that led to increased visitation would result in more unauthorized surface collection and casual excavation of prehistoric sites, although the extent of these impacts cannot be quantified. When recreational use was dispersed, adverse impacts would be more difficult to counter.

The BLM would attempt to concentrate camping in the Spur Unit and picnicking at The Narrows, and would designate 57 miles of hiking trail. If these areas and corridors were surveyed, with cultural resources documented and avoided, designation of specific camping areas, picnic areas and hiking trails would be beneficial to cultural resources. Adverse effects that could result from more dispersed use would be partly mitigated by public education, as well as archeological survey and documentation.

Under Alternative D, the BLM would encourage public visitation at the Dittert Site, Ranger Station Reservoir, and at up to six historical homesteads. Documentation is sufficient to protect scientific values at the Dittert Site and the homesteads, although the physical structures at all of these sites would require increased maintenance. Systematic documentation would be needed at the Lobo Canyon Petroglyphs, with data recovery through systematic collection of surface materials at the Ranger Station Reservoir.

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Issue 2--Facility Development

Development of 57 miles of trail would focus visitation onto particular routes that could be modified

to direct visitor use away from sensitive cultural resources. The picnic area and trailheads are not known to be in especially sensitive areas, but Class III inventories would be conducted in a ¼-mile radius around these facilities to consider secondary impacts.

The proposed campground in the Spur Unit would require special survey and monitoring. The proposed campground is near areas of dense cultural resources that would be vulnerable to surface collection. In addition to Class III inventories, the BLM would conduct a reconnaissance survey within a 1-mile radius before developing the campground, attempting to locate and document all sites vulnerable to illegal surface collection. The condition of these sites would be monitored carefully, and if any changes in their condition were detected from recreational use of the campground, appropriate mitigating measures would be taken (e.g., data recovery, closure of affected areas to public entry).

Issue 3--Access & Transportation

Under Alternative D, no off-road vehicle use would be allowed, benefitting cultural resources by preventing erosion and direct damage from vehicles running over archeological sites. Approximately 83 miles of roads and trails outside wilderness would be closed and 273 would remain open. Many of the roads and trails to be closed are in the Chain of Craters and Cerro Brillante Units, which have low densities of cultural resources, so these closures would not benefit such resources. Other roads and trails to be closed are in the Spur, Breaks, and Breaks Non-NCA Units, which have high site densities, and in the Brazo and Cerritos de Jaspe Units which have moderate densities. Limiting motor vehicle access in these areas would protect prehistoric and historical cultural resources by making it more difficult for scavengers and looters to bring in excavation gear or to transport away materials such as building stone or weathered wood. At the same time, limited access would make patrol by BLM specialists and law enforcement personnel more difficult.

Issue 4--Wilderness Management

Under the Alternative D, scientific investigations in wilderness areas would be restricted by the "minimum tool" standard and would be limited to activities that resulted in no significant visual, vegetative or other natural resource impact. Resource deterioration due to natural decay and natural erosion would be allowed to continue unless unusual resources were threatened, and even then remedial actions would be restricted by wilderness considerations.

However, wilderness is generally patrolled more intensively than other BLM lands. This would increase the likelihood that ARPA violations would be discovered and reported.

Issue 5--Wilderness Suitability

Under this alternative, additional lands would be added to the Cebolla Wilderness, including some with high densities of cultural resources. The impacts of this addition would be the same as those described above under Issue 4.

Issue 7--Cultural Resources

Under Alternative D, as under Alternative A, the BLM would emphasize conservation of cultural resources for future use. However, under Alternative D, provisions for inventory, NHPA compliance, and scientific investigations that included collection and excavation would be more strict. These measures, as well as proposals for signing, access easements and consolidation of ownership, road closure, monitoring, stabilization, and fire suppression would have mild positive long-term impacts on the scientific and public values of cultural resources.

Stringent requirements for scientific investigations would limit current scientific information from the NCA, but would leave more sites in better condition over the long term. At the levels projected for this alternative it is unlikely that long-term scientific potential of cultural resources within the NCA would be negatively affected.

Under this alternative the BLM would issue permits to members of Acoma Pueblo, allowing them to collect prehistoric pottery for use in the manufacture of contemporary pottery. This would inevitably result in the irretrievable loss of some scientific information. However, issuing individual permits for particular sites or areas would allow the agency to control the scale of this activity, develop and implement mitigating measures. Permits would be restricted to well-documented sites. In many cases buried materials would remain onsite, potentially becoming available for scientific excavation. The BLM could also retain a sample of the surface material for future analysis. Under these conditions, serious short- and long-term adverse impacts would be avoided.

Interpretation would increase public awareness and appreciation of cultural resources, but would inevitably result in the loss of surface artifacts at the Dittert Site and the Ranger Station Reservoir. Sufficient documentation exists for surface artifacts at the Dittert Site, but without mitigation, establishment of a trail at the Ranger Station Reservoir would cause a long-term loss of the scientific value of the site.

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Issue 8--Wildlife Habitat

Prairie dog enhancement is proposed for an area at the mouth of Cebolla Canyon near the Cebolla Canyon Community. It is expected that the animals would remain in the fine, valley-bottom sediments, away from the prehistoric resources. However, their behavior would be monitored, and if disturbance encroached into the area of prehistoric ruins, appropriate corrective measures would be taken.

Issue 9--Vegetation

Livestock grazing could adversely affect cultural resources by reducing vegetation and contributing to erosion. Trampling could break artifacts on the ground surface, and livestock rubbing against historical structures could contribute to their deterioration. Erosion affecting cultural resources would undoubtedly continue, but would be reduced by improved grazing management under Alternative D. Eight historical homesteads in the Planning Area have been fenced to exclude livestock, and this alternative provides for additional fencing if warranted.

Any vegetative improvement activity that was likely to result in surface disturbance, such as timber thinning operations that included harvesting the trees, would be subject to Class III cultural resources inventory.

Fire could destroy historical sites with flammable elements and damage the scientific potential of surface and near-surface archeological materials. Associated activities such as establishment of fire camps and construction of fire lines could also result in adverse impacts to cultural resources. Under this alternative, 8 to 12 historical sites have been identified for protection from fire, and other newly discovered sites could be added to the list. Reconnaissance-level surveys looking for sites with flammable materials would be conducted in areas where prescribed fires were proposed. Areas proposed for prescribed fires would not generally be inventoried to Class III standards if they had low site density (refer to Map 37). Class III inventory would be considered in zones of high site density, and a cultural resource advisor would be required during fire suppression activities, regardless of the source of ignition.

Issue 10--Boundary & Land Ownership Adjustments

If completed by the Congress, expansion of the NCA to include the Breaks Non-NCA and Tank Canyon SFO Units would add numerous significant Anasazi ruins, providing them with a higher level of protection and more intensive management. Pending legislation, the Breaks Non-NCA Unit would be subject to provisions of this plan, but the Tank Canyon-SFO Unit would remain subject to the Socorro Resource Management Plan (in which it is identified for sale or disposal).

The easements and acquisition of inholdings proposed under Alternative D could also benefit BLM efforts to manage cultural resources by improving access and consolidating ownership. Closure of lands to mineral entry would help prevent inadvertent damage to cultural resources. Realignment of cherry-stemmed roads in the Cebolla Wilderness would be subject to a site-specific EA and NHPA compliance. If cultural resources were likely to be affected, appropriate avoidance or other mitigating measures would be adopted.

Summary

NCA designation and the provisions of this plan would be effective in protecting cultural resources from damage as the result of deliberate, planned actions. However, natural and human factors would continue to degrade cultural resources under Alternative D. Natural deterioration would affect historical homesteads, while gully and sheet erosion would affect archeological sites. Both archeological and historical sites would be vulnerable to illegal collection, looting, and vandalism, although these impacts could be decreased somewhat if visitors heeded interpretive messages about the need to leave sites intact.

Recreational development and designated areas of use would be in both nonsensitive and sensitive areas under Alternative D. Additional systematic documentation would be needed in several areas proposed for recreational developments and cultural resources interpretation. Vehicle use would be limited to designated roads, and some existing roads and trails would be closed. These provisions would help protect cultural resources from off-road vehicle damage and make access more difficult for looters, as well as for BLM personnel engaged in monitoring

and patrol activities.

Management activities intended to have a positive effect on cultural resources such as stabilization, erosion control, patrol and monitoring would be limited to the most important sites and restricted in wilderness. Archeological research that involved collection and/or excavation would not be prohibited under this alternative, but strongly discouraged.

Wildlife Habitat

Under Alternative D, actions proposed to resolve the issues listed below would have no impacts on wildlife habitat, or the magnitude of the impacts would be considered negligible. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources

Issue 1--Recreation

Under Alternative D, the BLM would emphasize some concentrated and developed recreational opportunities (e.g., hiking, camping, interpretive tours, horseback riding, mountain biking). As identified under Alternative A, three areas (Ranger Station, La Ventana Natural Arch, The Narrows) would continue to be used for recreational activities that would result in impacts to wildlife and/ or their habitats.

Interpretive evening programs would occur three to four times a week at the Spur Unit amphitheater with up to 30 people each night, so approximately 1,920 people would attend during the 16-week summer season. Six additional, interpretive guided hikes with approximately 25 to 50 people each would occur at the Dittert and/or other archeological sites. The anticipated impacts would include disturbance on approximately 2 acres of habitat from foot traffic (¼ acre per site at about seven sites), and in a zone of approximately 280 acres (40 acres per site) near the activities. Wildlife in the immediate vicinity of the activity would be disturbed and vegetative habitat would be crushed by people walking around the area.

Five trails (Ranger Station Reservoir, Narrows Rim, La Ventana Natural Arch, CDNST, Hole-in-the-Wall) would be emphasized for hiking activities under Alternative D. The impacts of these five trails were identified under Alternative A, and would be the same under Alternative D.

Dispersed camping, hiking, picnicking, horseback riding and mountain biking outside the established recreation sites and trails would create only short-term disturbances to wildlife species in the immediate vicinity (e.g., birds flushed from trees, rabbits from bushes). These activities would not be anticipated to cause any long-term impacts. It is estimated that wildlife would be disturbed on 960 acres per year.

Issue 2--Facility Development

Expanded recreational facilities would result in a direct loss of an additional 19 acres of wildlife habitat from the development, and a broader zone of wildlife disturbance on 3,340 acres due to human use of the area (refer to Table 4-1). The development of a campground in the Spur Unit would directly disturb 8 acres of wildlife habitat, and create a disturbance zone of approximately 640 acres.

Additional trails for hiking and sightseeing would be emphasized at 10 cultural, historical and scenic sites throughout the Planning Area during the summer months. For analysis purposes, these trails are each anticipated to be about 2 miles long. The anticipated impacts would include disturbance of approximately 7 acres of habitat from foot traffic and a zone of approximately 1,600 acres within the immediate vicinity of the trails.

Trailheads and limited parking (four to six vehicles each) would be developed at three sites. Direct disturbance of approximately 1 acre (¼ acre each) and a zone of 480 acres (160 acres each) would occur from the establishment of these facilities. Three other trailhead and parking sites would be developed with parking for 8, 20 and 25 vehicles. Direct disturbance of approximately 3 acres and a zone of 480 acres would result from the establishment of these facilities.

In addition to developing the treadway for the CDNST, the BLM would build two primitive trailheads near Cerro Americano and Cerro Brillante, with graded parking for 20 vehicles at each location.

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These trailhead parking areas would cause a long-term loss of 2 acres of habitat (approximately 1 acre for each site). Wildlife disturbance would be expected over approximately 320 acres near the sites (160 acres each).

The designation of one new back country byway and the expansion of the existing one along CR 42 would create direct impacts to wildlife habitats from vegetative loss and soil disturbance caused by vehicles and other human activities. In addition, increased disturbance (e.g., noise) would occur from these facilities.

New entry and watchable wildlife signs and kiosks would be installed for the new and expanded back country byways under Alternative D. The four kiosks would directly impact approximately ¼ acre each (including a pullout for four to six vehicles each), for a total of 1 acre. In addition, a zone of disturbance around these kiosks would be 160 acres (40 acres each). Two large identification signs built along I-40 would impact approximately 100 to 200 square feet each. All these developments would have direct impacts on habitats, but because they would be installed along established roads, the impacts would be less than if the developments were in undisturbed locations.

Issue 3--Access & Transportation

Under Alternative D, vehicle use would be restricted to 273.1 miles of roads outside wilderness (refer to Table 2-11). Wildlife would benefit from closing 83.4 miles (23 percent) of the roads in the Planning Area. The lands adjacent to the closed roads would not be subject to habitat degradation from vegetation loss and soil disturbance caused by vehicles and other human activities. Limiting vehicles to designated roads would also reduce habitat degradation by minimizing the number of new roads that appeared over time. In addition, closed roads would eventually revegetate, providing additional habitat with reduced disturbance to wildlife populations within the area.

Habitat along roads that continued to be designated for use would be subject to ongoing degradation from vehicles and other human activities.

Issue 4--Wilderness Management

Impacts on wildlife habitat from wilderness management under Alternative D would be the same as those identified under Alternative A. However, the primary emphasis under Alternative D would be on the recreational qualities of the wilderness setting.

Issue 5--Wilderness Suitability

If the Congress designated 3,930 acres contiguous to the Cebolla Wilderness, wildlife habitat would be protected and enhanced. Until designation, these lands would be managed under the Interim Management Policy (except where it applied to minerals), which would also protect wildlife habitat. Under Alternative D, a smaller quantity of lands would be recommended for wilderness (5,410 acres) than under Alternative C, but more than under Alternative A or B, under which no lands would be recommended. However, management of this area under the Interim Management Policy and potentially as wilderness could preclude or modify certain wildlife habitat improvement projects.

Issue 8--Wildlife Habitat

In addition to maintaining the existing developments (refer to Alternative A), the BLM would undertake up to eight wildlife habitat improvement projects annually (up to three fires and five other projects). The facility projects would disturb approximately ½ acre per project, for a total of 2 acres per year over the 15- to 20-year life of this plan (refer to Table 4-1). The two prescribed fires would average approximately 500 acres each in size, with the wildland fire under prescription estimated at 1,000 acres.

As described under Alternative B, five wildlife enhancement projects would be planned under Alternative D, including three water catchments, a prairie dog colony enhancement area, and a riparian fencing development. The three water developments (1,500-gallon rainwater catchments) would be installed in the Cerro Brillante Unit (T. 6 N., R. 12 W., Sec. 31, SE¼; Sec. 33, NE¼; Sec. 35, NE¼). The long-term loss of habitat would be approximately 1,200 square feet (.02 acre) of grassland. In addition, short-term

impacts would include the crushing of vegetation by vehicles and foot traffic during construction, and the disturbance of small wildlife (e.g., birds, rodents, reptiles) within the immediate vicinity of the site.

The prairie dog colony enhancement project would use about 1,000 acres of both the south half of the North Pasture and the Head Pasture of the El Malpais Allotment (Breaks Unit). This unit contains the largest known prairie dog colony within the Planning Area. Enhancement for prairie dogs would help support two special-status species in the area (burrowing owl and mountain plover). If the prairie dog colony expanded to an appropriate size (about 200 acres), it would also be a potential release site for the black-footed ferret, one of the most endangered mammals on earth. Impacts of this colony would be the same as those discussed above under Alternative B.

Under Alternative D the BLM would fence approximately 1 to 1½ miles of riparian habitat along Cebolla Canyon. This is one of the few small perennial streams within the Planning Area, and consequently is considered sensitive wildlife habitat. Approximately 3 acres of habitat would be excluded from livestock grazing under this alternative.

In addition to those projects already identified under this alternative, new projects would be proposed to enhance existing habitats. These projects could each disturb between less than an acre (for water developments) and 1,500 acres (for prescribed and wildland fires) annually.

Issue 9--Vegetation

The general positive and negative impacts of vegetative treatments to wildlife and their habitats are identified under Alternative A *except that grazing improvements including fences, wells, storage tanks, and dirt tanks create a long-term vegetative disturbance on 530 acres. Planned pipeline development and fence construction would create short-term disturbance on an additional 65 acres.*

As under Alternative B, under Alternative D the BLM would increase the emphasis on vegetative treatments with the use of livestock grazing, prescribed and wildland fires, and structures (e.g., fences). Piñon-juniper thinning would be emphasized, with *for the purpose of this analysis* 100 acres to be

conducted annually to meet vegetative objectives. This vegetative manipulation would cause a short-term disturbance to wildlife habitat, but would create long-term benefits by increasing vegetative diversity and opening up the closed piñon-juniper canopy.

Prescribed and wildland fires would be used to accomplish vegetative objectives for forests, woodlands, and shrub-grasslands. *An estimated* five fires could be expected annually under this alternative, ranging in size from 50 to 1,500 acres each, with an average size of approximately 500 acres (for prescribed fires) to 1,000 acres (for wildland fires under prescription). (These would be the same five fires identified under Wildlife Habitat above.)

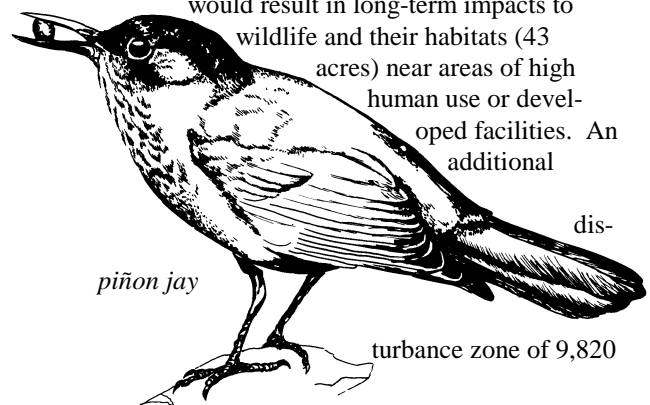
Riparian management would be implemented using both exclosures and grazing management practices to accomplish objectives for properly functioning condition. The BLM would plant riparian species and/ or remove exotic species (e.g., saltcedar, Russian olive) under this alternative.

Issue 10--Boundary & Land Ownership Adjustments

Acquisition of lands under Alternative D would be the similar to that identified under Alternative B. The consolidation of private inholdings into BLM administration would benefit wildlife through improved manageability, especially if the acquired lands contained sensitive habitats. Under this alternative, additional lands not identified in Alternative A under the Land Protection Plan would be acquired if owners were willing to sell.

Summary

Under Alternative D, activities associated with recreation, interpretation, and facility development would result in long-term impacts to wildlife and their habitats (43 acres) near areas of high human use or developed facilities. An additional



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acres would occur from human activities. Dispersed activities (e.g., hiking, sightseeing, guided tours) would generally create intermittent impacts (of a few hours or days) to wildlife. Activities in wilderness and the WSA would generally provide short- and long-term benefits to wildlife and their habitats because of the associated protective measures. Wildlife facilities on approximately 3 acres and vegetation treatments (e.g., prescribed and wildland fires, woodland thinning) totalling 3,100 acres would create short-term, site-specific negative impacts, but would result in long-term improvement of habitat productivity.

Threatened, Endangered & Other Special-Status Species

Alternative D:

As discussed under Alternative A, the BLM has completed informal consultation with the FWS under Section 7 of the ESA. As part of the informal consultation process, a Biological Assessment was prepared for all Threatened and Endangered and other Special-Status Species (Refer to Appendix Q). The FWS concurred with the BLM determinations of "May Affect - Not Likely to Adversely Affect" and no formal consultation was initiated.

Vegetation

Under Alternative D, actions proposed to resolve the issues listed below would have the same impacts on accomplishing vegetative objectives as the actions under Alternative A. Impacts from resolving the remaining issue are discussed in the paragraph following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Achieving the Potential Natural Communities would be the vegetative goal for the Planning Area. As a result, a common set of long-term objectives would be established to guide management and use of vegetation. In general, vegetative species diversity would be expected to improve.

Vegetation--Forest & Woodland Resources

Under Alternative D, actions proposed to resolve the issues listed below would have the same impacts on accomplishing forest and woodland objectives as those for Alternative A. Impacts from resolving the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

For the purpose of this analysis it is estimated that approximately 100 acres of piñon-juniper could be thinned each year to meet forest and woodland objectives. The thinnings would be conducted at lower elevations where the site potential was open savanna or shrub-grassland. During the life of this plan, an estimated 2,000 acres could be improved.

Approximately 50 acres dominated by piñon-juniper with the potential to be ponderosa pine would also be thinned. Fires ranging in size from 50 to 1,500 acres each could be burned each year to improve the ponderosa pine forest community and provide for an open piñon-juniper woodland community.

Vegetation--Rangeland Resources

Under Alternative D, actions proposed to resolve the issues listed below would have the same impacts as those for Alternative A. Impacts from resolving

the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Achieving the Potential Natural Communities would be the vegetative goal in AMPs/CRMPs. Rest from livestock grazing use would be increased. Rangeland improvements would continue to be built to allow increased rest from grazing use.

During the short term, improvements in vigor, productivity and reproduction would be expected for grass species. With increases in productivity, grazing periods would be adjusted to increase the frequency and duration of rest. In the long term, cool-season grasses and desirable shrubs would increase. Based on improvements in vegetative vigor, reproduction, and rest from livestock grazing, vegetation would be less susceptible to the negative effects of drought.

Social & Economic Conditions

Actions proposed to resolve the issues of recreation, vegetation (grazing), and American Indian uses and traditional cultural practices could potentially have social and/ or economic impacts. However, the differences proposed for resource use and development between alternatives would not create measurably different impacts. Therefore, the impacts for Alternative D would be the same as those described above for Alternative A.

Soil, Water & Air Resources

Under Alternative D, actions proposed to resolve the issues listed below would have the same impacts on soil, water and air as those for Alternative A. Impacts from resolving the remaining issue are discussed in the paragraphs following the list.

- Issue 1--Recreation
- Issue 2--Facility Development
- Issue 3--Access & Transportation
- Issue 4--Wilderness Management
- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices
- Issue 7--Cultural Resources
- Issue 8--Wildlife Habitat
- Issue 10--Boundary & Land Ownership Adjustments

Issue 9--Vegetation

Vegetative ground cover would be expected to increase, reducing the likelihood of soil loss through wind and water erosion. Improvements in watersheds would result primarily from woodland thinning, live-stock grazing management and fire. As a result of the disturbance associated with the piñon-juniper thinning, the soil surface could be exposed to increased wind and water erosion. Selecting sites for treatment that were less susceptible to erosion would reduce this short-term risk. After thinning, the BLM would rehabilitate roads as needed to limit erosion.

Within 2 to 3 years after thinning, increases in the vegetative understory (i.e., forbs, grasses and shrubs) would occur, reducing the erosion potential to less than it was before thinning. In the long term, the layering of the vegetative ground cover (i.e., forbs, grasses, shrubs and trees) would improve, reducing the likelihood of soil loss through wind and water erosion.

Vegetative responses to fire would be similar to those anticipated for woodland thinning. Short- and long-term improvements in vegetative cover would be similar, especially in those areas selected to burn for resource enhancement. Fires in the areas burned to reduce fuel load could be hotter, which could lengthen the vegetative recovery period. Burn prescriptions (e.g., for wind speed, temperature, humidity) would be used to help reduce the risk of vegetative damage from fire heat.

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Visual Resource Management

Under Alternative D, actions proposed to resolve the issues listed below would have negligible impacts exceeding the VRM objectives assigned to public land within the Planning Area. Impacts from resolving the remaining issues are discussed in the paragraphs following the list.

- Issue 5--Wilderness Suitability
- Issue 6--American Indian Uses & Traditional Cultural Practices

Issue 1--Recreation

Visual resources on 247,940 acres or just slightly less than all of the Planning Area would benefit through the assignment of VRM Class I and II management objectives, as under Alternative C. Management to meet the objectives for these two classes would prevent activities that would create noticeable changes in the elements of form, line, color and texture found in the landscape. VRM Class I, the most restrictive for changes to the landscape, would be assigned to 104,730 acres of wilderness, while the remaining 143,210 acres would fall under VRM Class II management objectives. The visual resources on the 60 acres of VRM Class III lands immediately surrounding the BLM Ranger Station would be subject to a greater degree of change.

Issue 2--Facility Development

The construction of a campground in the Spur Unit would disturb approximately 8 acres, resulting in short-term visual impacts. With the facility's design, the limited number of units, and the location being screened from the major travel routes, minimal impact would occur on the scenic values of the area. Visual resources on another 33 acres would be disturbed by hiking trails and associated facilities (i.e., parking areas and trailheads).

Issue 3--Access & Transportation

Closing 83.4 miles of travel routes and restricting motor vehicle use to the designated routes left open would enhance visual resources. Closed roads would be allowed to revegetate, reducing the visual contrasts from landform and vegetative alterations.

Issue 4--Wilderness Management

The assignment of VRM Class I to 104,730 acres of designated wilderness would preserve the visual resources by preventing activities that would leave human imprints or not appear natural.

Issue 7--Cultural Resources

The construction of erosion-control structures at 256 cultural sites would create short-term visual impacts. However, because native material would be used for the control structures, which would be low-lying, horizontal and placed where erosional disturbance was already occurring, no long-term visual impacts would be evident. The structures would likely enhance the visual quality of the local areas as erosion was abated, the areas were restored to resource production, and further exposure of soil and loss of vegetation was prevented.

Issue 8--Wildlife Habitat

Undertaking up to 10 projects to improve habitat would benefit visual resources over the long term. The construction of three water catchments over the life of the plan would result in less than ¼ acre of disturbance; these would be located, if possible, in areas where they would be screened from view by vegetative and topographic features.

Issue 9--Vegetation

Woodland and forest treatments would create visual contrasts in texture through thinning on areas up to 150 acres in size. The location, amount of thinning required, and spatial distribution of treatments would help determine the severity of the impact on visual resources.

The continued use of forage and range improvements for livestock management would remain evident in the landscape. No new improvements would be proposed.

With up to five fires planned annually, covering 50 to 1,500 acres each, short-term visual impacts would occur from the visibility of the blackened burned area and the contrast between it and the surrounding unburned area. Over the long term, these areas

would rehabilitate, helping to create diversity and plant vigor that would enhance visual resources.

Issue 10--Boundary & Land Ownership Adjustments

The acquisition of nonfederal surface and subsurface estate would help preserve scenic quality because these lands would be managed to protect their visual quality by minimizing the degree of contrasts that could occur.

Summary

Localized impacts to visual resources would come from recreational facility development and vegetative treatments under Alternative D. VRM Class III would be assigned to 60 acres, on which activities would be allowed that could moderately alter the form, line, color and texture of the landscape. Activities on the other 247,940 acres of public land in the Planning Area would be restricted to conform to objectives for VRM Classes I and II. Wilderness designation and the assignment of VRM Class I to 104,730 acres of public land would especially help maintain and enhance visual resources. Acquisition of non-federal inholdings (both surface and subsurface)

would benefit the management of visual resources by minimizing the contrasts that could occur within the Planning Area.

Cumulative Impacts

Under Alternative D, these would be the same as those identified under Alternative A above *except long-term vegetative disturbance would occur on 613 acres as a result of grazing improvements and recreation facilities development. Short-term vegetative disturbance would occur on 65 acres on a one time basis as a result pipeline installation and fence construction. Rehabilitation should be complete on these projects in two to three years. Fire is to be used as a vegetative improvement tool on approximately 3000 acres per year. This will have a short-term negative effect but after two to three years is expected to increase both the quality and quantity of vegetation on these acres. This acreage of improved vegetation would continue to grow as long as the treatment continues. The cumulative vegetative disturbance acreage would reach approximately 6613 acres (both short and long term). The increased quality and quantity acreage would reach several thousand acres because the improvements are expected to be effective for many years.*

